



Owner's Manual

ProTERMTM

ProTERM™

***Telecommunications
Software for the
novice to the pro...***

by

Greg Schaefer

Published by Checkmate Technology, Inc.

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Your ProTERM Serial Number_____

Preface

About This Manual

This manual has been written in sections according to the normal progress of a user learning the program. If you are fairly familiar with communications, you should be able to skip the first couple of chapters. The program and manual are designed so that you should only need to read the manual once. As you may have seen, the table of contents provides a detailed topic-by-topic list of the material in this manual.

Chapter 1: “Getting To Know You” will introduce you to many of ProTERM’s features and describe the hardware requirements for using ProTERM. A list of materials included in your ProTERM package may be found in this chapter.

Chapter 2: “Getting Started” is for the user who is somewhat familiar with ProDOS and with communications. It will lead you through configuring a new copy of ProTERM.

Chapter 3: “The ProTERM Interface” explains ProTERM’s windows and keyboard mannerisms. This manual’s notations are also introduced in this chapter.

Chapter 4: “Day-To-Day Operations” will briefly show you all of ProTERM’s main areas and show you how to make your first call.

Chapters 5 through 10 deal with the various functions of ProTERM and show you the power hidden beneath an apparently innocuous surface. We think you will be surprised at all that awaits you.

Chapter 11 deals with our Warranty and Service policies. Here you will learn how to get updates and what to do if you damage your ProTERM disk.

For more in depth information on many subjects, be sure to consult **Appendices A through H.**

I. Getting To Know You. . .

About ProTERM

ProTERM is a powerful communications program written for ProDOS and an Apple IIGS, //e, or //c computer. Using ProTERM, you may establish a telephonic link between your computer and almost any other computer which is accessible by modem. You can reach commercial time-sharing services such as The Source, CompuServe, PeopleLink, Delphi, GENie, BRS, Dialog, and NewsNET; you can also connect with many popular Bulletin Board Systems run by individuals in nearly every community in the United States. If you are not aware of any privately-run bulletin board systems in your community, check with your computer retailer or the Users' Groups in your area.

ProTERM is controlled through a series of pop-up menu windows which are never more than a keystroke away. All windows contain common default options which are preset, but may be configured individually to meet the demands of your hardware or those of the system with which you are communicating.

Hardware Requirements

ProTERM will run on an enhanced Apple //e, //c, IIGS, or Laser 128 with most internal and external modems providing that they are 100% Hayes compatible. Apple //e's must have an 80 column card in the auxiliary slot and a minimum of 128K of memory. The 80 column card must have a minimum of 64K. Most extended RAM cards, following the Apple //e Auxiliary slot convention, are supported to a maximum of 2 Megabytes. These include the MultiRam //e, MultiRam RGB, The QCard™, and MultiRam CX/CX PLUS offered by Checkmate Technology, Inc., as well as memory cards offered by other manufacturers. Apple IIGS memory cards are supported to a maximum of 2.5 Mb for SCROLLBACK.

A ProDOS compatible clock and/or printer are both supported by ProTERM, though neither are required.

Supported Modems

Apple Modem 300/1200
Apple Personal Modem
Cermetek Applemate 1200
CTS Fabri-Tek 1212AD, 2424ADH/AMH
DataLink 1200
Epic 2400 Classic II, 2400Plus, Mini
Hayes Micromodem II, Micromodem //e, Smartmodem 300/1200/2400
MultiTech Multi modem 300/1200/2400
Novation Apple Cat 103/212, Smartcat Plus, Professional 2400
Prometheus Promodem 1200/1200A
Prentice Popcom X100
US Robotics Autodial 212A, Password, Courier 2400, HST 9600
Zoom/Modem //e.

While it is not possible to test every hardware configuration in today's developing marketplace, almost any modem which is truly "Hayes-compatible" and which uses the Hayes command-set will work with ProTERM. Those that are not "Hayes compatible" will usually work satisfactorily using ProTERM's "null modem" configuration.

Modem Ports and Serial Cards

Apple //c modem port
Apple IIGS modem port
Laser 128 modem port
Apricom Super Serial Imager
Apple Super Serial card
CCS 7710 Serial card
M.B.I. V.I.P. card
Practical Peripherals SeriALL
Prometheus Versacard Serial
SSM Apple Modemcard

Chapter 1: Getting To Know You...

Printer Ports and Interface Cards

Apple //c printer port
Apple II GS printer port
Laser 128 printer port
Apricorn Parallel card
Apricorn Super Serial Imager
Apple Super Serial card
Epson APL Printer card
Orange Micro Grappler Plus
Practical Peripherals SeriALL
Star Micronics Grafstar

List of Materials

Your ProTERM package includes:

- a ProDOS formatted 3.5" program diskette
- a ProDOS formatted 5.25" program diskette
- this manual
- a product registration card

If any of the materials are missing, please contact your dealer or Checkmate's Technical support staff. When calling Checkmate for any reason, please have your ProTERM serial number available.

II. Getting Started

Copying ProTERM

ProTERM is distributed on non-copy-protected diskettes. Most computer owners are familiar with the controversy about software piracy and the pro's and con's of software copy-protection. You may be wondering, then, why we recommend that you immediately make a backup copy of ProTERM. The reason is simple. Floppy disks are fragile because they are constructed of a thin coating of magnetic media evenly distributed over a substrate of mylar plastic. The disk itself is enclosed in a durable, but not indestructible, jacket to protect the carefully crafted recording surface from contamination by dirt, dust, hairs, fingerprints and other foreign material.

When in use, the disk read/write head is in physical contact with the surface of the disk; there is constant wear as the disk spins beneath the drive head. In time, your original program "master" disk may become so worn as to be unusable. Should your program disk become damaged, you will have to go through the inconvenience and cost of replacing it. See Chapter 11, "Service & Warranty" for details.

The best strategy is to make a series of backup disks. First, make a copy of the ProTERM original program diskette, then put the original disk in a safe place. Next, configure the backup copy for the hardware in your system according to the instructions provided later in this chapter. After you configure your copy disk, make a second copy as your backup working copy. Put the second copy away and use only the actual working copy. Later, as you are using ProTERM in day-to-day applications, new information will be saved to your working copy. It is important to make periodic backups of your working copy. If you use this backup method, in the unfortunate event of the death of your working copy, your backup copy will contain the most up-to-date system list and macros.

ProTERM on a Hard Disk

If you would like to run ProTERM from a hard drive, first create a subdirectory on the hard disk with an appropriate name. Then copy the files "PROTERM.SYSTEM," "PROTERM," "PT.INSTALL," "PT.XFER," and "PT.ROUTINE" into your new subdirectory. To launch ProTERM, you may select either "PROTERM.SYSTEM" or "PROTERM".

NOTE: If you are launching ProTERM from an Applesoft program selector, you must select "PROTERM.SYSTEM" as "PROTERM" is too large to be launched by Basic.System. Attempting to launch "PROTERM" will result in the Basic message, "NO BUFFERS AVAILABLE".

Verifying Your Copy

After you complete the copy process on floppy disk, check the catalog to verify that it contains the following files.

PRODOS	Apple's operating system (P8)
SQUIRT.SYSTEM	Alternate program selector. See also Appendix G
PROTERM	The main program
PROTERM.SYSTEM	The hi-res Logo (this file is optional)
PT.INSTALL	The hardware installation module
PT.XFER	The file transfer module
PT.ROUTINE	The subroutines module

On a hard disk, there is no need for ProDOS to be duplicated in the ProTERM subdirectory. The subdirectory should contain:

PROTERM	This file will start the program.
PROTERM.SYSTEM	This file is optional; it will also start the program.
PT.INSTALL	
PT.XFER	
PT.ROUTINE	

Later, files named PT.BIOS, PT.DIAL, and PT.MACRO will be created by ProTERM as you follow through the manual and try out ProTERM's powerful features.

Chapter 2: Getting Started

Installation - Initial System Configuration

NOTE: If you are upgrading from an earlier version of ProTERM, you must delete the files PT.BIOS and PT.PARM as the structure of these files has been changed.

Once you have made a working copy of the distribution diskette, you must inform ProTERM about the hardware with which it will be operating. Make sure that the following steps are performed with a working copy and not with the distribution disk which was included with this manual.

Boot the working copy of your ProTERM diskette or run ProTERM from the hard disk (execute the file PROTERM.SYSTEM). The disk will spin briefly and the Checkmate logo will appear. After about three seconds, the picture will disappear and the disk will run some more. After a few more seconds, the screen will clear and a title bar will appear at the top of the screen with the name of the program.

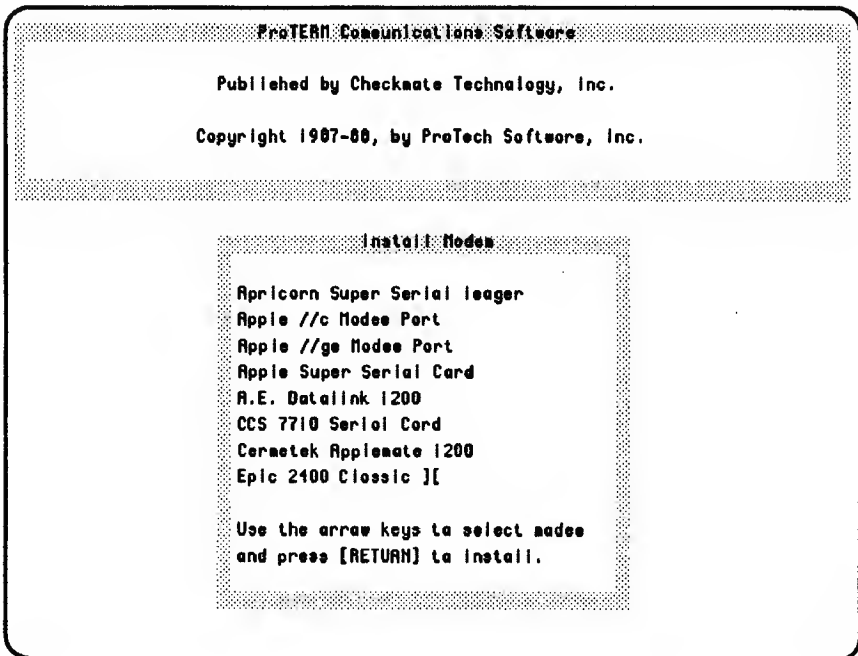


Figure 1

Chapter 2: Getting Started

A window will open up in the middle of the screen which will be titled "Install Modem" (see figure 1). Within the window, several modems, modem ports for the Apple //c and Apple II GS, and a list of serial cards will be displayed. If an internal modem (such as the Epic 2400 Classic II) is used, select it by using the arrow keys to move the highlighted bar to the entry. If an external modem (such as the Epic 2400 Plus or other "Hayes-compatible" modem) is being used, select the serial card that you are using by pressing the arrow keys until the selection is highlighted, then press [RETURN].

NOTE: The window list will only show 8 choices at a time. Use the arrow keys to scroll the list.

When the internal modem or serial card has been selected, you must specify the card's slot within the computer. Use the arrow keys to highlight the number of the slot where the card is placed. Typically, slot 2 is used for modems in an Apple (see figure 2). If you selected either the Apple //c or II GS modem port, choosing a slot will not be required, as ProTERM already knows where to find these ports.

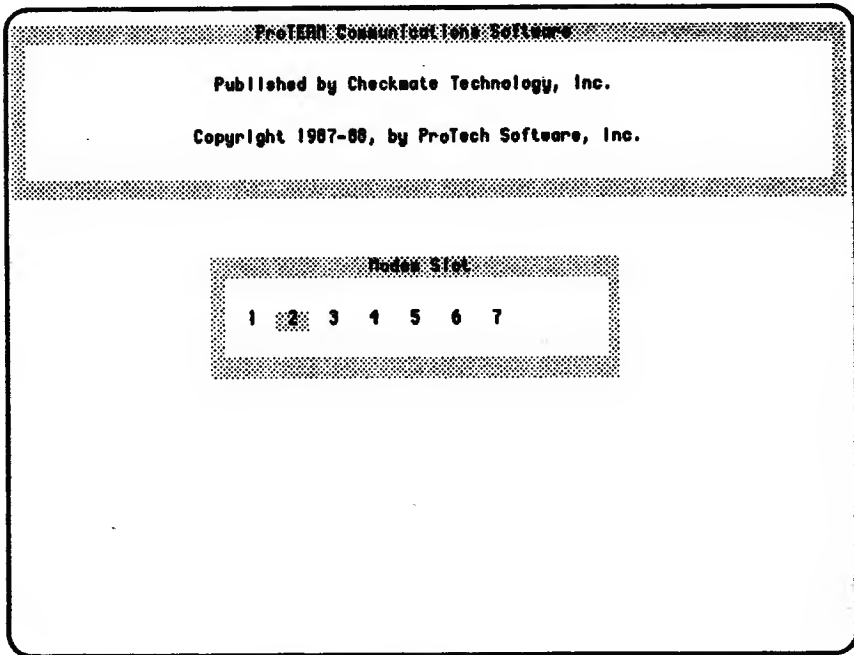


Figure 2

Chapter 2: Getting Started

If you are using an external modem (such as an Apple Personal Modem), your modem must be specified after selecting your serial card. Use the arrow keys to scroll through the list of external modems, highlighting the modem which is connected to your computer. If your modem is not listed, consult your modem manual for its compatibility with other modems. Many modems are "Hayes-compatible." If you can not find the name of a compatible modem, one of the Hayes Smartmodems should be selected. If you have a 300 baud modem, select "Hayes Smartmodem 300." If you have a 1200 or 2400 baud modem, select "Hayes Smartmodem 1200" or "Hayes Smartmodem 2400." If your modem is not "Hayes-compatible," then you should select the "Null Modem Driver." With this driver, you will always be in terminal mode, and you may type the necessary commands to your modem directly.

Next, a list of printer interface cards will be displayed (see figure 3). If your system does not contain a printer, use the arrow keys to highlight the "No Printer in System" option and press [RETURN]. Otherwise, use the arrow keys to scan through the list and select your printer interface card. If your card is not listed, use the "Generic Printer Driver" entry. This will work with nearly all printer cards.

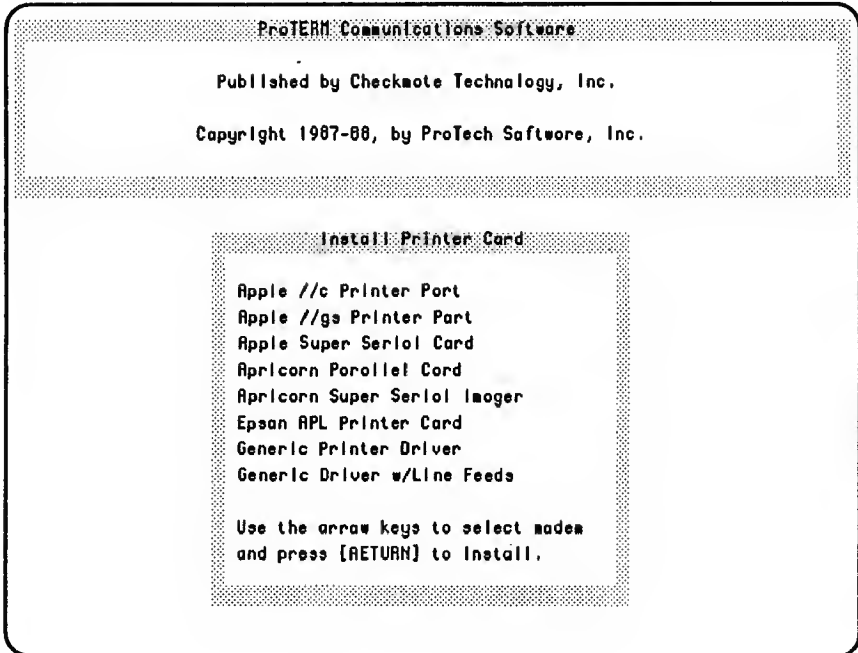


Figure 3

Chapter 2: Getting Started

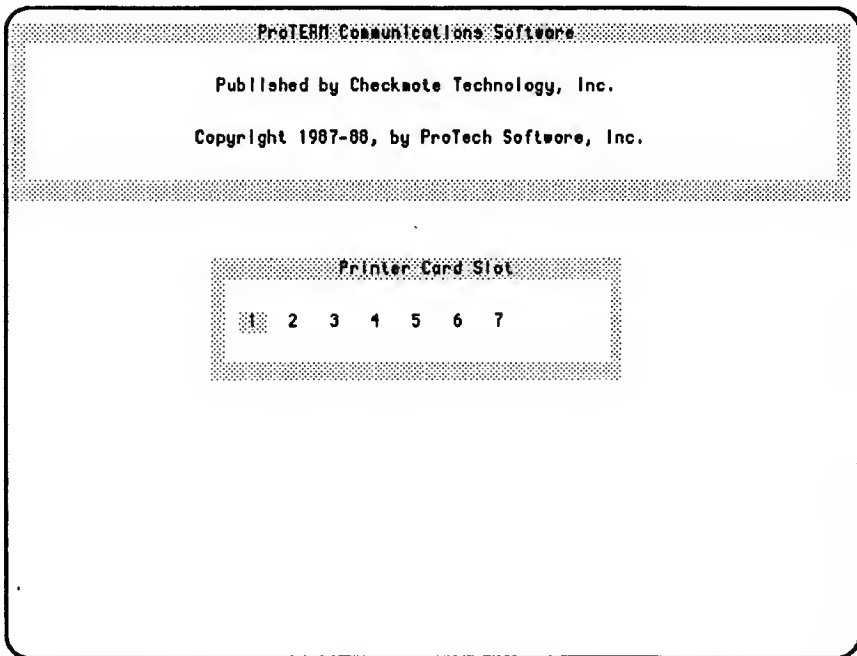


Figure 4

Lastly, use the arrow keys to select the slot in which the printer interface card is installed. Typically, the printer interface card will be in slot 1 as shown in figure 4.

Chapter 2: Getting Started

Once the modem and printer interface card have been specified, a window titled "Install" will be displayed (see figure 5). This window will display ProTERM's current configuration. To change the modem, use the arrow keys to highlight the word "Modem" and press [RETURN]. To change the printer interface card, use the arrow keys to highlight the word "Printer" and press [RETURN]. The "INIT" choice may be used to change the string of characters sent by ProTERM to the modem when it is first initialized by the program. A default initialization string is provided that will work with most "Hayes-compatible" modems. Do not change this string unless you are familiar with initialization strings and need to change the one provided for your modem. If the current configuration is correct, use the arrow keys to select the word "Quit" and press [RETURN].

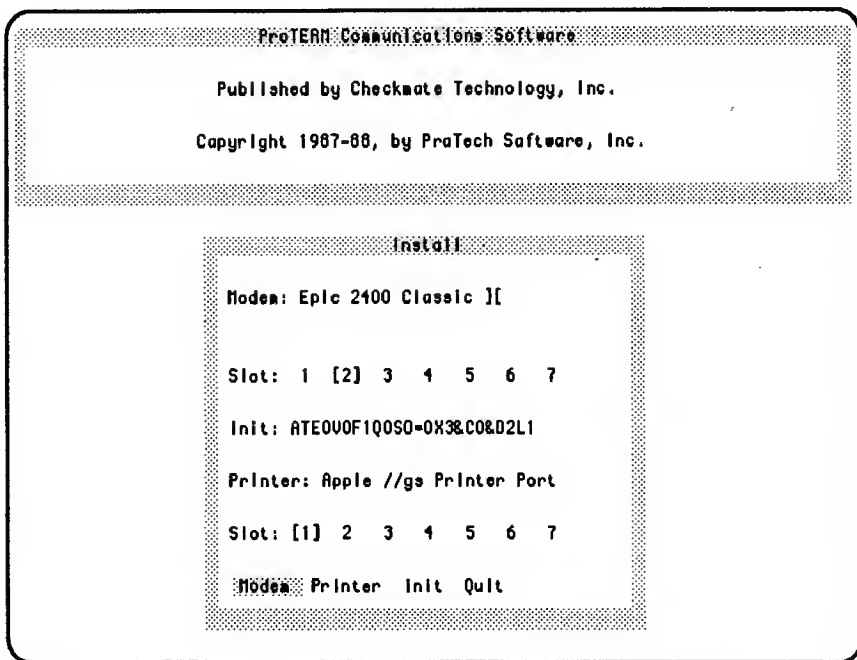


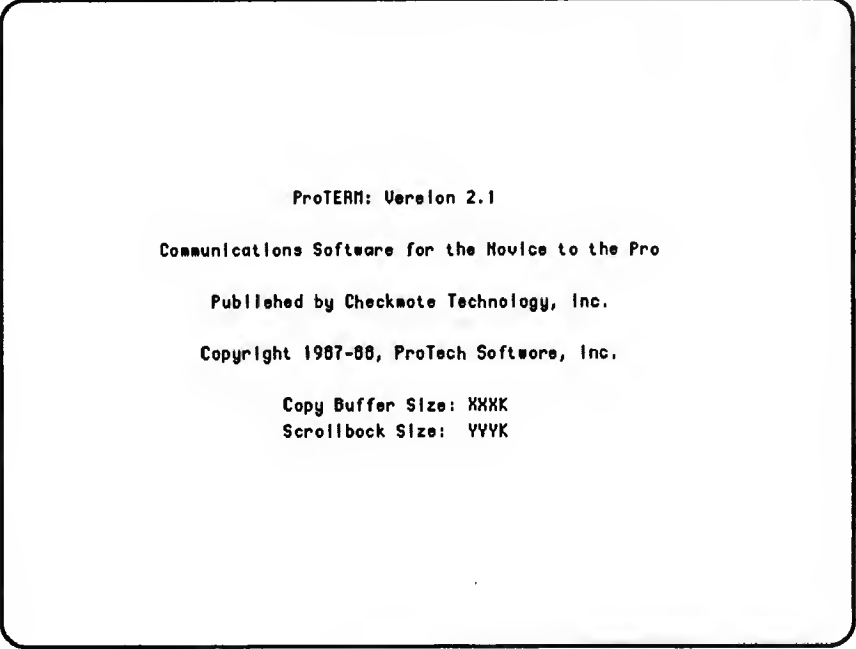
Figure 5

Chapter 2: Getting Started

You have completed the configuration of your working disk. If you left ProTERM at this point and checked the catalog of your working disk, you would see that a new file, PT.BIOS, has been added to the disk. This file contains information needed for ProTERM to operate in the environment you have specified. Now is a good time to backup your working disk and store it away. Later, as you add systems and macros to ProTERM, the PT.DIAL and PT.MACRO files will be created or updated on your working copy. As noted, it is wise to backup your working copy from time to time, just in case it is damaged. Should this happen, you will not have to reconstruct your list of systems and their logon macros.

Running the Program

When ProTERM is booted (or following an Install), the screen will clear and you will see the title screen:



```
ProTERM: Version 2.1  
  
Communications Software for the Novice to the Pro  
  
Published by Checkmate Technology, Inc.  
  
Copyright 1987-88, ProTech Software, Inc.  
  
Copy Buffer Size: XXXX  
Scrollback Size: YYYK
```


Chapter 2: Getting Started

The memory available to the copy buffer will be displayed in place of "XXX" above and the memory available for the SCROLLBACK buffer will be displayed in place of "YYY." These numbers are variable because ProTERM will automatically find expanded memory in a //e or //c (as long as the memory card uses the auxiliary slot protocol) or it will use expansion memory in the IIGS. In a //c with a 1/2 Meg Checkmate MultiRam CX card, the copy buffer will be 46K and SCROLLBACK will be 378K; in a //e with a 1 Meg Checkmate MultiRam RGB card, the copy buffer will be 46K and the SCROLLBACK buffer will be 700K; in a IIGS with a 2 Meg Checkmate MultiRam GS card, the SCROLLBACK will be over 2100K!!! In contrast, a 128K Apple //e only offers a 23K copy buffer and a 21K SCROLLBACK. The importance of a large SCROLLBACK buffer will be discussed in Chapter 3. Also, see Appendix A for details on the use of expanded memory cards and RAM disks.

After the introductory screen is displayed, ProTERM initializes the system. The first stage will find all usable memory in the system and clear it for use with SCROLLBACK and the copy buffer. This step is invisible to the user. The next stage is started when the message "Initializing System Modem" is displayed. If the system contains an external modem with lights, they will probably flash at this time. Should a problem occur, a message, "Unable to Initialize Modem," will be displayed. If this message appears, make sure that the modem is powered on. If the modem is already on, try powering it off and on again. Use ProTERM's "Retry" option to attempt a second initialization. If this attempt also fails, select the "Install" option and make sure that the current hardware configuration is correct.

Under certain conditions ProTERM may "hang" after displaying the title screen. This will happen if ProTERM was incorrectly configured for your hardware. While this may be somewhat alarming, there are no ill effects associated with it. You must, however, convince ProTERM to allow you to install your hardware again. There are two ways to go about this. The first way involves rebooting ProTERM and pressing the [I] key while it is booting. This takes you into install. The second is to delete the file "PT.BIOS" from your working copy. If you boot ProTERM after "PT.BIOS" is removed, it will go automatically into the install mode, as it did originally.

If your computer does not contain a clock, ProTERM will display the last date set and prompt for it to be updated. If the date is correct, just press [RETURN]. If the date is not correct, use the arrow keys to position the cursor over the incorrect portion and type in the date. Press [RETURN] once the correct date has been set. ProTERM will then save the modified date to disk.

Chapter 2: Getting Started

Once the system has been initialized, ProTERM prepares itself for your commands by displaying the Main Menu, as seen in Figure 6. At this point, the world of communications is at your fingertips!

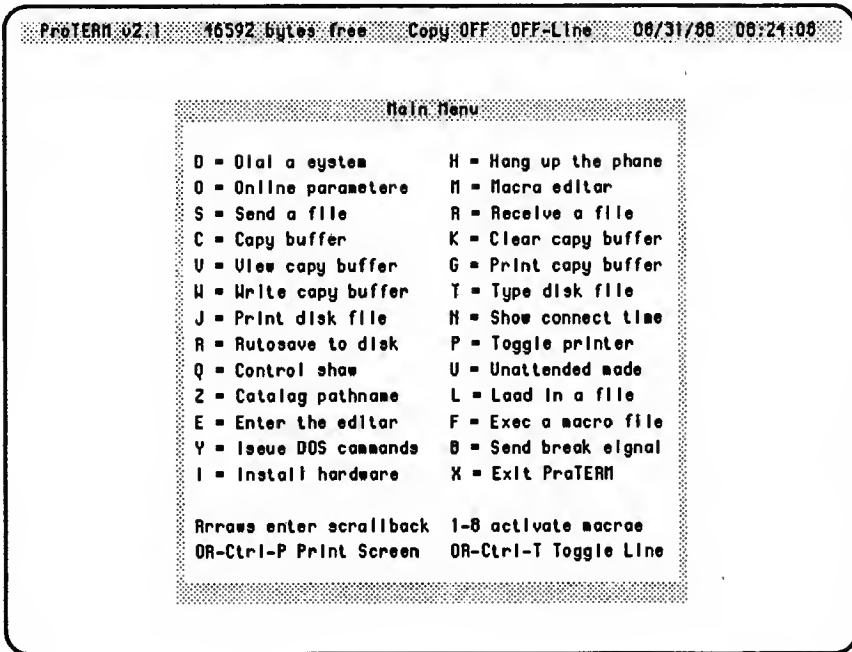


Figure 6


III. The ProTERM Interface



Basic Operation

The Window Interface

ProTERM features a “multiple-choice window-based user-interface.” In simpler words, the program takes its instructions through temporary pop-up windows. The reason for this is simple: windows preserve the underlying screen information. It is advantageous to be able to issue commands without affecting the information displayed during an on-line session. All command and option selection is done through multiple-choice interfaces. Since the available choices are always displayed, you never have to guess what options you have.

When not connected to a remote system (local mode), ProTERM always displays the Main Menu. Commands are executed by pressing the corresponding letter.

ProTERM frequently uses the open- or closed-apple keys to invoke commands. This manual uses the open-apple symbol, “

When on-line with a remote system (terminal mode), commands are issued by pressing the open apple key (+command key, and not waiting for the menu to appear. ProTERM’s use of the 

Chapter 3: The ProTERM Interface

When typing window entries with ProTERM, text input is done via a standard set of text editing commands. Initially, the cursor will always be placed at the end of any string of text to be edited. Any new text that is entered will “overstrike” existing text. Text entry is ended when the [RETURN] key is pressed. The cursor may be at any point in the text when [RETURN] is pressed without truncating (or “lopping off”) the tail of the text string. As you enter text, the following editing commands may be used:

<u>Press</u>	<u>Means</u>	<u>To Get</u>
[CTRL]-[B]	[BEGIN]	Move to beginning of line.
[CTRL]-[A]	{alternate}	Move to beginning of line.
[CTRL]-[D]	[DELETE]	Delete the character at the cursor.
[CTRL]-[F]	[INSERT]	Insert a space at the cursor.
[CTRL]-[E]	[END]	Move to the end of line.
[CTRL]-[S]	{alternate}	Move to the end of line.
[CTRL]-[R]	[RESTORE]	Restore line to original content (if [RETURN] has not been pressed yet).
[CTRL]-[X]	[CANCEL]	Erase entire line.
[CTRL]-[T]	[TRUNCATE]	Truncate line at cursor.
[CTRL]-[Y]	{alternate}	Truncate line at cursor.

Some windows contain more than one field. When editing a multiple field window, the [TAB] key may be used to advance to the next field, and from the last field back to the first. If a field is entered in error, press [TAB] until that same field is highlighted again and make the proper entry. Press [RETURN] on the last field to accept the window. If things are really messed up, you can always press [ESC] to cancel the operation.

All windows and choices have a default selection. If you are ever unsure of what choice to make, simply press [RETURN] to accept the default setting.

Entering a System to Dial

When ProTERM is ready for your commands, it can be used to call a system. If you do not already have a system’s phone number, check with your computer retailer or local Users’ Groups for the number of a private bulletin board in your area.

To call a system, select [D] for dial from the main menu. Alternatively, you may simply enter a [RETURN] from the main menu and you will be taken to the “Dial a System” menu (see figure 7). A list of two options will be

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presented. The first option, is “Enter New System.” The second option will be “Quick Dial System.” Use the arrow keys to highlight the “Enter New System” option and press [RETURN].

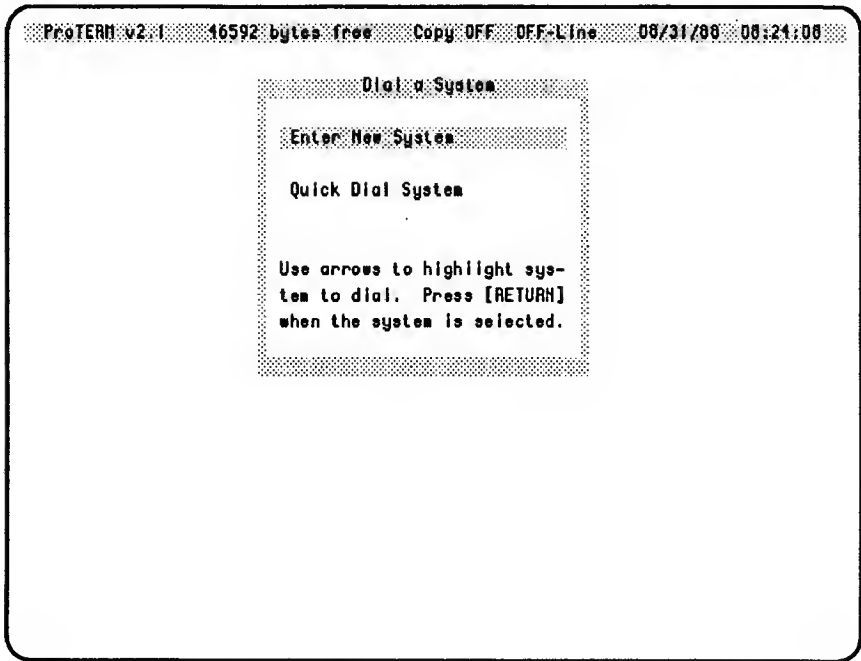
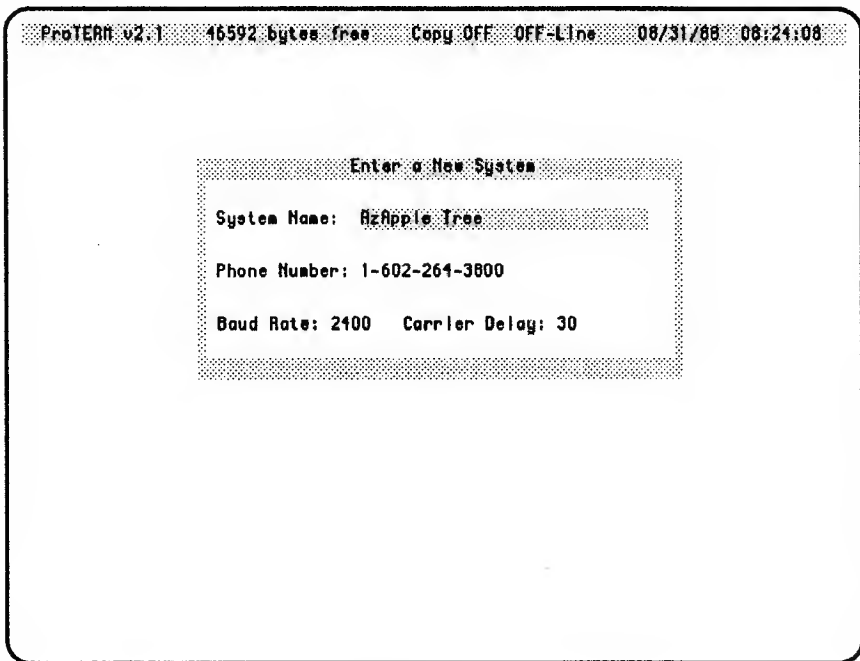


Figure 7

A new window will appear prompting for the name of the system to be called (see figure 8). The name may be up to 27 characters long and may contain both upper and lower case. Type in the name of the system. If you make a mistake, use the backspace key or any of the editing keys to make the needed corrections. Press [RETURN] when finished. Next, type in the phone number of the system and press [RETURN]. Use the arrow keys to select the baud rate to use. If the baud rate of the remote system is not known, set the baud rate to 300. Press [RETURN] to accept. The carrier delay is the number of seconds to wait for the remote modem to answer; leave the carrier delay at the default of 30 seconds.

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The screenshot displays the ProTERM v2.1 interface. At the top, a status bar shows 'ProTERM v2.1', '46592 bytes free', 'Copy OFF', 'OFF-Line', '08/31/88', and '08:24:08'. In the center, a dialog box titled 'Enter a New System' is open. It contains three input fields: 'System Name: AzApple Tree', 'Phone Number: 1-602-264-3800', and 'Baud Rate: 2400 Carrier Delay: 30'.

Figure 8

Once ProTERM has information about at least one system, the dialing menu will display a systems list in alphabetic order. If more than 9 systems have been entered, you may use the arrow keys to scroll to systems beyond the first 9 entries. ProTERM's dialing list will accommodate 28 system names and numbers. For information on maintaining more dialing lists, refer to Appendix A.

Dialing a System

Once a system's information has been entered, the original "Dial a System" window will be displayed (see figure 9). Notice that the system you just defined was added to the list.

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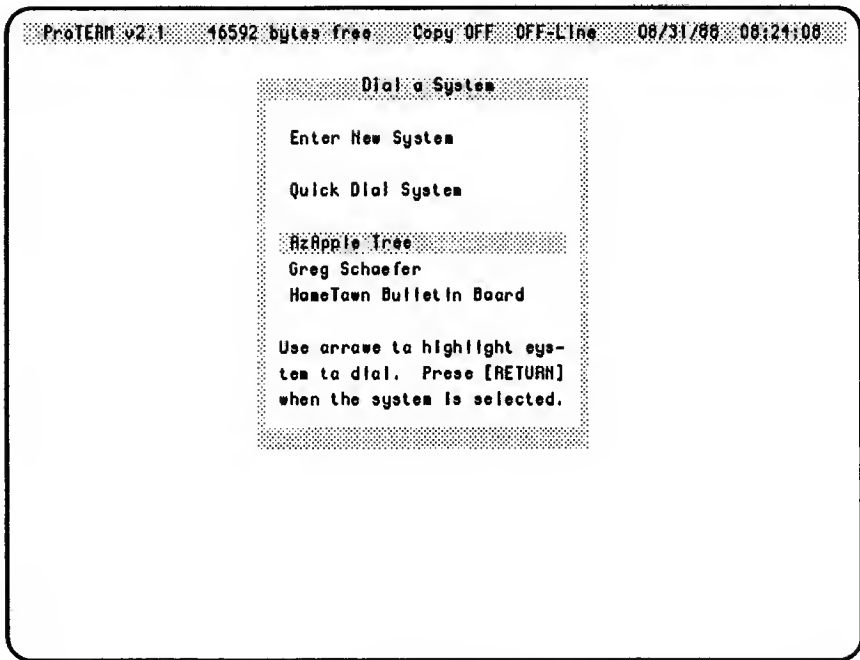


Figure 9

Press [RETURN] to select that system. The “System Parameters” window will now be displayed along with options for dialing, continuous dialing, editing, or deleting the system (see figure 10). If you made a mistake while setting up the system, select the “Edit” option. The four original parameters may then be edited along with some additional parameters. After making any needed changes, use [RETURN] or [TAB] to skip over fields that are already correct. Once finished, the dial, continuous dial, edit, or delete options may again be selected.

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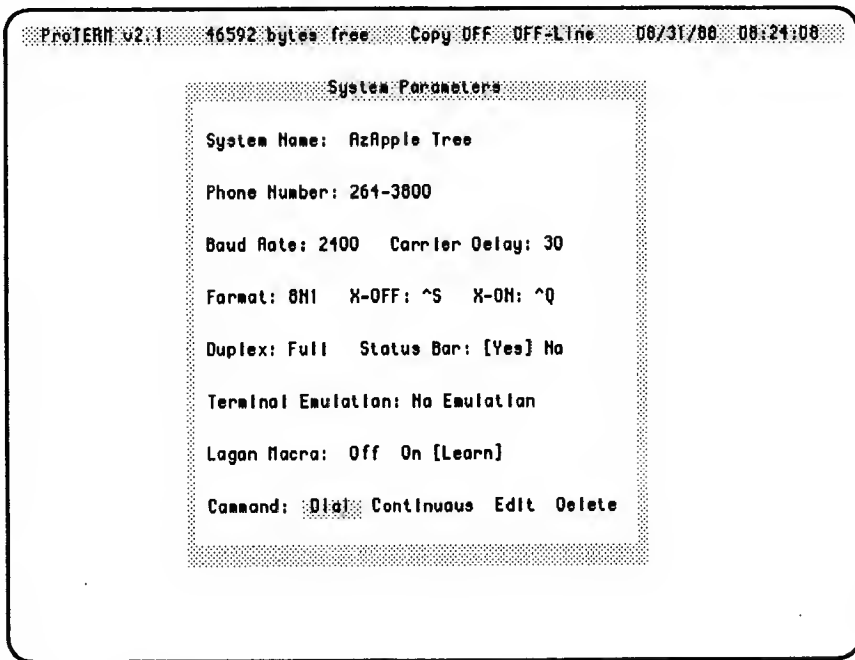


Figure 10

Select "Dial" to call the system. A small window will open in the lower right hand corner and ProTERM will dial the system (see figure 11). If your modem is equipped with a speaker, the progress of the call may be monitored. If you hear a busy signal and wish to re-dial before ProTERM has waited for the carrier delay to expire, press [RETURN]. If you wish to cancel the dial attempt altogether, press [ESC].

If the carrier delay expires without establishing a connection, a window labeled "Unable to Connect" will be displayed. From this window, a [RETURN] will cause a single re-dial to take place. If the attempted connection fails again, ProTERM will return to this window once more. To automatically redial the system, select the "Continuous" option and ProTERM will dial the system over and over until a connection is established or [ESC] is pressed. With the continuous dial option, a special sound will be played once the connection is made. The special connect sound will continue until you press any key. This was designed so you could leave the room while ProTERM is continuous dialing, and still be alerted when the connection is established.

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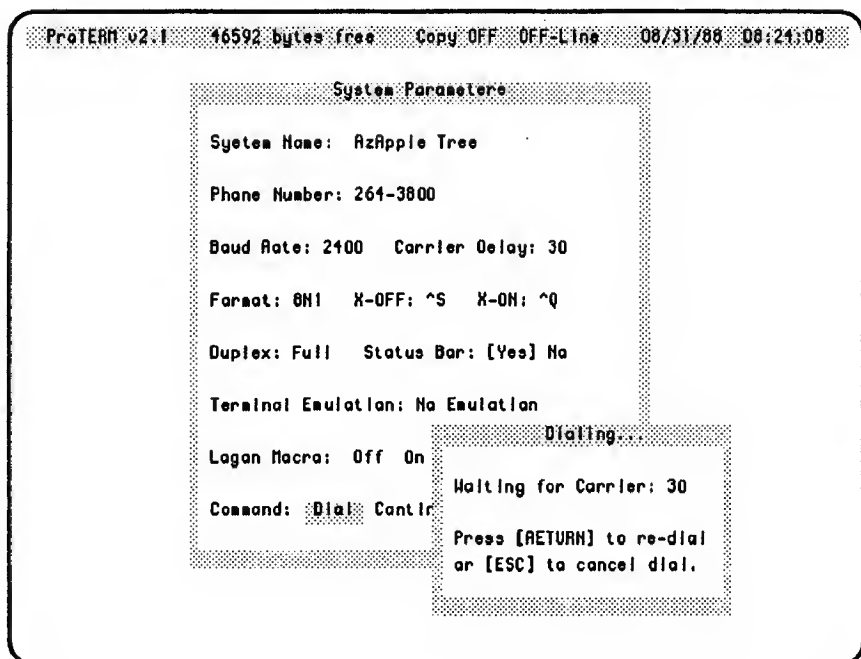


Figure 11

Once connected with the remote system, the screen will clear except for the top status bar and ProTERM will enter terminal mode. From this point, you can log on, apply for a password, or conduct “business as usual” with the remote system. Your commands are now governed by the system you have called.

NOTE: After at least one remote system has been entered in the “Dial a System” menu, a check of the catalog will reveal that the “PT.DIAL” file has been created. Again, it is wise to backup your working disk periodically so your list of systems is preserved if the working copy of your ProTERM disk fails.

Using SCROLLBACK

After logging-on to a remote system, you will usually ask the system to display the special command set for that system. Sometimes you will view instructions for establishing your password, editing text, etc. Now, if you wanted to refer to the information after it scrolled off the screen, you would have to request the remote system to re-display the information you wish to see. Unfortunately, on a system which charges for connect-time, or on a long-distance call, this costs money. ProTERM offers a nearly-instantaneous way of doing the same thing!

SCROLLBACK is ProTERM's unique storage area that is devoted exclusively to "remembering" information that has scrolled off the screen. You can enter the SCROLLBACK area and browse through it, finding the information you need. If you recall, at the time the system was booted, you were told how much memory was available to the SCROLLBACK buffer. This is how much ProTERM can retain for your review using SCROLLBACK.

SCROLLBACK is "temporary memory," in that quitting ProTERM or losing power to your system causes the contents of the SCROLLBACK buffer to disappear forever. Until that occurs, however, the information is there, waiting to be called back to the screen. Information that has scrolled off the top of your computer's screen accumulates in SCROLLBACK memory until it fills up. Once SCROLLBACK memory is full, new lines coming into SCROLLBACK push the "oldest" lines out of the buffer. Once data has been pushed out of the buffer, it cannot be recalled from SCROLLBACK.

When on-line, enter SCROLLBACK by pressing either apple key in conjunction with one of the arrow keys. The screen should clear and two highlighted lines will appear at the bottom of the screen. If this does not happen, try pressing the ⌘-[ARROW] combination again.

Once in SCROLLBACK, the contents of the current screen will be displayed (see figure 12). Pressing the up arrow causes the screen to scroll back a page. The data that had previously scrolled off the screen will now be displayed. The up and down arrow keys scroll up and down one page, while the left and right arrow keys scroll up and down one line. The numbers 1 through 9 position the screen at various points within the SCROLLBACK data, similar to the method used in AppleWorks™; "1" goes to the oldest data, "9" goes to the newest data and numbers "2" through "8" go to points in between.

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```
ProTERM v2.1  46592 bytes free  Copy OFF  OFF-Line  08/31/88  08:24:08

(* Welcome to the Arizona Apple Tree *)

  A state of the art communication
  service for Apple Users.
  _____

300/1200/2400 baud is available.
Your call connected at [2400] baud.

Enter your Apple Tree User Number or
enter the word NEW if you're a New User.

--> 50

Your Password is?...
--> XXXXXXXX

Up/Down arrows move a page; Back/Forward arrows move a line; 1 thru 9 position
Tab enters a list; Spacebar selects text; Return when finished; Esc to exit
```

Figure 12

Remember that while you are in SCROLLBACK, the remote system is waiting for you to do something. If you stay in SCROLLBACK too long, the remote system may hang up on you. Once you have finished looking through SCROLLBACK, press [ESC] to exit from SCROLLBACK back to terminal mode. While you are in SCROLLBACK, ProTERM attempts to suspend all incoming data. If data continues to come in, only the last 256 bytes (characters) will be saved.

Disconnecting From a Remote System

To disconnect from the remote system, use the “Hangup” command. Enter **␣-[H]** and select the “Hangup” option. The word “Hangup” may be selected by using either of the arrow keys to move the inverse cursor or by typing the letter [H] in either upper or lower case. The modem will then disconnect from the remote system after a few seconds. Depending on the nature of the system to which you are connected, you may need to issue a disconnect command to the remote system before you tell ProTERM to hang up. On some remote systems, failing to issue the disconnect command will leave the remote tied up so other callers cannot access it until the operator resets it. If the remote system hangs up at any time while you are on-line, ProTERM will return to the Main Menu automatically, and an “Off-line” status will be displayed in the status bar at the top of the screen.

Quitting ProTERM

To leave ProTERM and reenter ProDOS, select the **␣-[X]** option for “Exit ProTERM.” Since exiting the program erases both the copy buffer and the SCROLLBACK buffer, you will be asked to confirm that you wish to quit the program. You may confirm your decision using either the arrow keys and [RETURN] or the letter [Y] and [RETURN]. If the copy buffer or editor contains text, a warning will appear to remind you to save the text prior to exiting. If you confirm that you want to quit, you will be directed into the “ProDOS Quit Code.” If you booted ProTERM from a copy of the original disk, you will enter the SQUIRT program selector. SQUIRT is designed to make it simple to move between ProDOS applications. More detailed information about SQUIRT is provided in Appendix G.

IV. Day-To-Day Operations

Day-to-day operations are those operations that occur during the routine use of ProTERM. Much of the information in this section has been touched upon in "Getting Started." The entries in this section are grouped in the order that their need will occur for the "average" user with the more common operations detailed first and the less-frequently used operations later.

System Parameters

Each system entered in the ProTERM "Dial A System" list has many associated parameters. The "System Parameters" are characteristics of each system that allow ProTERM to deal with many different types of systems from large commercial services with very special requirements to simple private Bulletin Board Systems (BBS's). To edit any of these parameters use the "Dial" (C-[D]) command and select the system to edit. A window will appear displaying all of the parameters (see also figure 10 in Chapter 3). The cursor will initially be on the "Dial" command; use the arrow keys to move the cursor to "Edit." The process always begins with the "System Name" field selected. Use the [TAB] or [RETURN] key to go to the next field. From the last field, "Logon Macro", [TAB] takes you back to "System Name" while [RETURN] takes you to the dial, continuous-dial, edit, and delete options. The parameters and their meanings are as follows:

System Name

This is the name as it will be displayed in the system list in "Dial." The name can be up to 27 characters long with both upper and lower case. If the system name is changed, the name will be re-alphabetized into the list of systems.

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Phone Number

This is the phone number of the remote system. The phone number can be up to 27 characters long and may contain several “meta-characters” (see Appendix A for a method to use up to 64 characters if needed). The meta-characters are:

*	Wait for 2 seconds
#	Send the “#” on a touch tone phone
&	Send the “*” on a touch tone phone
P	Set to pulse dialing mode
T	Set to tone dialing mode

Some examples of the meta-characters in a dialing string would include:

P123-4567	— Dial with pulse dialing.
9*123-4567	— Dial out through a switchboard, pause, then dial an outside number.
123-4567*code*123-111-2234	— Dial via a long distance network.

ProTERM always defaults to touch-tone dialing. A “P” must be placed in the dialing string to force pulse dialing. The “T” meta-character was included so that users using pulse phone lines could dial through long distance, tone activated networks.

Baud Rate

The baud rate is the speed at which ProTERM will “talk to” or send/receive characters to/from the remote system. This is governed by the speed of your modem and that of the remote modem. The most commonly used speeds through dial uplines are 300, 1200, and 2400 baud. ProTERM supports seven baud rates: 110, 300, 1200, 2400, 4800, 9600, and 19200. Set the baud rate to the maximum speed of the remote system. If a system is called with a baud rate that is not supported by the your modem, ProTERM will automatically change the baud rate to a speed that your modem supports. If you are unsure of the speed of a remote system, start with the highest speed of your modem and work down or just call at 300 baud. Either way, it is a good idea to eventually set the baud rate to the maximum of that of the remote system. If you attempt to connect with a system at a baud rate it does not support, you will receive only “garbage characters.”

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Carrier Delay

The carrier delay is the amount of time that your modem will spend attempting to make a connection with the remote system. The default time is 30 seconds. When calling long distance, the connection generally takes longer to establish, and a carrier delay of 45 seconds is a good idea. When calling a local system, cut down the carrier delay to the minimum needed. Generally 20 seconds (sometimes even 15 seconds) is acceptable. The advantage to setting a short delay time is in continuous dialing: the more times ProTERM can call each minute, the better your chance of connecting to a busy service.

Data Format

Data is sent over a modem in an asynchronous serial format. In short, this means that the data is sent one bit at a time in a pre-specified format to the remote system where it is reassembled again. Thus, it is very important that both ends agree on the format they are using. When a character is sent, it looks something like:

start | data0 | data1 | data2 | data3 | data4 | data5 | data6 | parity | stop

The start bit is sent to indicate the start of a byte (or character). Next, the actual data is sent one bit at a time. In the above model, seven data bits are sent, while in real life, 8 data bits are more common. Optionally, a parity bit may follow the data. Parity is a form of "error checking" that helps to determine the validity of the data. Lastly, one or more stop bits are sent. These indicate that the end of the byte has arrived. The most commonly used format is "8N1." There are eight data bits sent, with no parity bit, and one stop bit. The next most frequent format is "7E1." It sends seven data bits, an "even" parity bit, and one stop bit. Parity is referred to in terms of "even", "odd", and "none." Normally, if this parameter is left alone, there will be no problems. If you find that you are connected to a remote system and are receiving only "garbage" characters, an incorrect format is the second suspect after making sure that the system supports the baud rate you are using.

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X-OFF

This is the character that is sent by ProTERM to the remote system to pause output from that system. Most systems use control-S (displayed as ^S) to stop output, though a few non-standard systems use characters such as "P" (for pause). It is very important that this character be defined properly. Many times when you issue ProTERM a command, ProTERM will send the X-OFF character to the remote system to pause it while ProTERM processes the command. If you are unsure of the setting of this parameter, leave it alone.

X-ON

This is the character sent by ProTERM to the remote system to start output again after an X-OFF character has been sent. The standard is control-Q (displayed as ^Q), though sometimes others are used.

Duplex

Duplex refers to how data is displayed by ProTERM when typed in at the local keyboard. Most systems run Full duplex. In full duplex, all data that is typed locally is sent to the remote system, but is not displayed on the local screen. The data is then "echoed" back by the remote system, where it is displayed on your screen. Some older systems run Half duplex. When data is typed locally, it is immediately displayed on the local screen and then sent to the remote system. The data is not echoed back. "Chat" duplex allows two users to type back and forth with each other and provides the needed echo so that each can see what is being typed.

Status Bar

The top status bar which gives the status of ProTERM may be toggled off or on with this flag. It is normally left on except when a full screen is desired. The status bar should be turned off when terminal emulation is in use so that it is not overwritten by incoming data.

Terminal Emulation

One of the most powerful features of ProTERM is that it can emulate many standard terminals. This feature is very useful for users of UNIX based systems or other hosts that take advantage of terminal emulation. If you are calling a standard system that does not support terminal emulation, select the "No Emulation" option. See Appendix E for a more complete discussion of terminal emulation.

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Logon Macro

This flag allows the user to enable or disable the auto-logon macro. With it enabled, the user can put ProTERM into "Learn" mode, where ProTERM will build a macro for the system. See Chapter 9, "Macros" for more details.

Quick Dialing

There are occasions when a system needs to be called on a one-time basis. Using "Quick Dial", a system may be called without entering it into the dialing list. With "Quick Dial", the phone number, baud rate, and carrier delay are entered for each call. The information is not recorded to disk, and is retained only while you remain in ProTERM.

Begin quick dial by entering the phone number (including any of the special dialing characters "P", "T", or "*"). Next, select the baud rate. Last, set the amount of time to wait for the remote system to answer the phone. Once these fields are set, enter a [RETURN]. The "Dialing" window will open and ProTERM will dial the system. If no connection is made, a continuous dial may be started by selecting the "Continuous" option from the "Unable to Connect" window.

Rotary Dialing

If you regularly connect to very popular systems, you are probably familiar with busy signals and continuous dialing. Alternatively, you may wish to try to connect to either one system or another, whichever will answer first; you may do this with ProTERM's rotary dialing feature.

To select which systems to include in the list, press **⌘-[D]** to bring up the dialing list menu and use the arrow keys to highlight one of the systems to include, then press the [SPACE BAR]. This will display a check mark beside the system's name. Repeat this procedure to select additional systems to include in the list. The [SPACE BAR] toggles the check mark on or off if you wish to remove a system from the list. Then use the arrows to highlight the check-marked system that you wish to begin with and press [RETURN] to open the "System Parameters" dialing window; choose "Continuous" dial and press [RETURN] to begin dialing.

If ProTERM fails to connect with the first system, it will automatically begin dialing the next check-marked system down the list. If it should fail to connect with that system also, it will continue with any other check-marked

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systems (wrapping around to the top of the list, if necessary) until a connection is made. When that call is completed, the check mark is removed from that system's name, removing it from the list of remaining systems to dial.

Showing the Connect Time

If your computer contains a ProDOS-compatible clock, ProTERM will monitor the time at which you connect with a remote system and compute how long you are on. At any time, while you are either on-line or off-line, you can press the `⌘-[N]` command, and the time you connected, the time you terminated (the current time if you are still on-line), and the elapsed time will be displayed in the upper right corner of the status bar. As soon as you press any key on the keyboard, the time will disappear.

Sending a Break Signal

Some remote hosts, especially the large commercial services, have a special "interrupt" key that can be used to stop operations. This key is called the "Break Key." To send a break to the remote system, press the `⌘-[B]` command. This signal does varying things depending on the specific service you are using. In general it will halt any operation that is in progress.

Using the Copy Buffer

One of the most important functions of a terminal program is to be able to save incoming data. ProTERM has several facilities for doing this, the most often used being the copy buffer. The copy buffer is basically just a "holding tank" for data and also serves as ProTERM's text editor. Unlike SCROLLBACK, which saves all incoming data, the copy buffer can be used to save selected portions of incoming data. The copy buffer is empty until something is placed in it. In contrast, the SCROLLBACK buffer accumulates everything that crosses your computer's screen.

When on-line with a remote system, the copy buffer can be turned on with the `⌘-[C]` command. If the status bar is enabled, it will then show "Copy" as "On." The "bytes free" counter will also start to decrease as data comes in from the remote system. The most important thing to remember about the copy buffer is that only new data will be saved. When the copy buffer is turned on, data already displayed on the screen will not be saved. To save data already showing on screen or in the SCROLLBACK buffer, see the section on "Advanced SCROLLBACK." The only way to actually tell the exact point at

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which data started being saved is to use the “View Copy Buffer” command to view the contents of the copy buffer. Once the desired data has been saved in the copy buffer, press **⌘-[C]** again to toggle the copy buffer off. The copy buffer may be toggled on and off as many times as needed. New data is always appended at the end of the old data.

Clearing the Copy Buffer

If there is old data in the copy buffer that should be discarded, the **⌘-[K]** command will clear the buffer. If the copy buffer is already empty, a notice to that effect will be displayed. Otherwise, confirmation will be requested. If confirmation is given, the copy buffer will be cleared and all old data will be lost. It may be advisable to check the contents of the copy buffer with the “View Copy Buffer” command before clearing the buffer.

NOTE: This buffer is the same buffer that is used by the editor and may contain text from the most recent use of the editor. Clearing this buffer will also remove all data from the editor.

Viewing the Copy Buffer

To examine the current contents of the copy buffer, use the **⌘-[V]** command. If the copy buffer is empty, a message will be displayed. Otherwise, the data will be displayed as it is within the copy buffer. Use the arrow keys to page forward and back through the data. Press **[ESC]** to exit.

Printing the Copy Buffer

To print out the contents of the copy buffer, use the **⌘-[G]** command. The “Print” window will open from which you can select options that manipulate the data that is to be sent to your printer. By default, the parameters will be set to print the copy buffer in an “as-is” state. No special text manipulation will take place. To print the data in this way, just select “Print” and press **[RETURN]**. For more information, please refer to Chapter 6, “Print Functions.”

Writing the Copy buffer

Once there is data in the copy buffer, you may write the buffer contents to disk. Using the **⌘-[W]** command will cause the “Write Copy Buffer” windows to open. If the data is to be written to the volume indicated in the

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lower window, enter a filename in the upper window. If the data is to be written to a different volume, specify the volume to receive the data in the lower window and the filename in the upper window. For more information, please refer to Chapter 5, "Disk Functions."

NOTE: Writing the copy buffer from the Main Menu will leave the buffer empty when finished.

Using the Printer On-Line

While data that is saved into the copy buffer may be printed, the printer may also be placed directly on-line so that all incoming data is printed as it is received. To do this, select the **⌘-[P]** command. All data received after entering this command will be sent to the printer and ProTERM will use the "X-OFF/X-ON" flow control so that the printer does not fall behind the modem. Use **⌘-[P]** to toggle the printer off. See also Chapter 6, "Print Functions."

Advanced SCROLLBACK

In addition to being able to view the data in SCROLLBACK, it is also possible to select portions of text. Once selected, the text may be placed into the copy buffer, written to disk, or printed out. The entire SCROLLBACK may also be saved, cleared, and reloaded from disk; refer to Chapter 5, "Disk Functions" for more details.

Viewing SCROLLBACK Data

To enter SCROLLBACK press the **⌘** with any arrow key. Once in SCROLLBACK, the arrow keys will scroll the display back and forth through the text. The up and down arrows will now scroll the display up and down a screen page, while the left and right arrows will scroll the display up and down a single line.

Selecting SCROLLBACK Data

To actually select text, press the **[TAB]** key to enter the select mode. A full width line cursor will appear. Move the cursor to the beginning or end of the selection you wish to make. Press the **[SPACEBAR]** to begin the selection. Move the cursor to either the end or beginning of the selection using the arrow keys or the number keys. The selected text becomes highlighted as the cursor is moved. Once the selection is complete, press **[RETURN]** to accept

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the selection. Press [SPACEBAR] again to select a new beginning/end point and disregard the last highlighted section. If you press the [TAB] key, you will exit the select mode and return to the normal viewing mode.

Once the text is selected, a window will appear which will allow the destination of the selection to be specified. Use the arrow keys to indicate whether the selected text is to be moved into the Copy Buffer, Written to Disk, or sent directly to the Printer and press [RETURN]. If the selection is to be written to disk, a filename must be specified along with several write parameters. If the selection is sent to the copy buffer, the data will be appended to any data currently in the copy buffer. From SCROLLBACK, the copy buffer is generally used as a "clipboard." Several selections may be made and sent to the copy buffer. This allows you to specify only a portion of the data in the SCROLLBACK buffer to be saved into the copy buffer. If you have sufficient system memory to allow the SCROLLBACK buffer to capture an entire session with a remote system, you may sign on, view all the desired information and system messages, then sign off without being concerned about switching the copy buffer on and off at the appropriate points. Then you may "clip" selected portions of the SCROLLBACK buffer to be duplicated in the copy buffer. After all the data is in the copy buffer, the copy buffer may be printed, edited, or written to disk.

If you select the "Printer" option to print the selected data, ProTERM will immediately send the data to the printer. Make sure that your printer is turned on and ready to go before selecting "Printer." Please note, however, no formatting is done on the selected text. If you wish the text to be formatted or processed, you should either write it to disk or place it in the copy buffer. Then use either the "Print Copy Buffer" or "Print Disk File" commands to print the text. See also Chapter 6, "Print Functions."

After the selection has been handled, ProTERM will return to SCROLLBACK. More text may now be selected or you can press the [ESC] key to exit from SCROLLBACK.

Finding Data in SCROLLBACK

In addition to using the arrow keys as mentioned above, and using the number keys, 1-9, as explained in the previous chapter, there is also a "Find" function in SCROLLBACK.

To find a particular spot within SCROLLBACK, press [RETURN] and a small "Find" window will open. You may enter anything you wish to locate in the area provided using the standard Window Edit Commands. The search

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is not case sensitive. The finding process will begin from your present spot and search forward to the end of the SCROLLBACK buffer.

When a match is found, the first line containing the target string will be highlighted and you will be put into the select mode (if not already). You may repeat the command to seek the next occurrence by pressing [RETURN] twice; the first time will re-open the find window, and the second time will begin another search using the string that remained in the find window.

If there is no match for your search string, then you will see no change in the screen display. Also, when you repeat a search and no more occurrences exist, your cursor will be left on the last match.

As you may call more than one system without clearing SCROLLBACK, ProTERM provides you with a method of locating where you connected with the next system. Every time you connect, a line will be placed in SCROLLBACK that indicates the name of the system and the time of connect, if you have a clock.

Control Show

There are cases where it is advantageous to be able to see all data that is being sent by a remote system, including the control characters that are normally invisible. Using the `^-[Q]` command causes ProTERM to show all control characters that are received by prefixing each one with a carat “^” character. A control-C would be displayed as “^C.” The only character that is not displayed is control-J (linefeed).

On-line Parameters

Several of ProTERM’s communication parameters may be changed while on-line. To edit any of these on-line parameters, enter the `^-[O]` command. The on-line parameters window will be displayed showing the parameters discussed below. If you do not understand the function of any of the parameters, use either [TAB] or [RETURN] to skip over the field. The on-line parameters are: (refer to figure 13).

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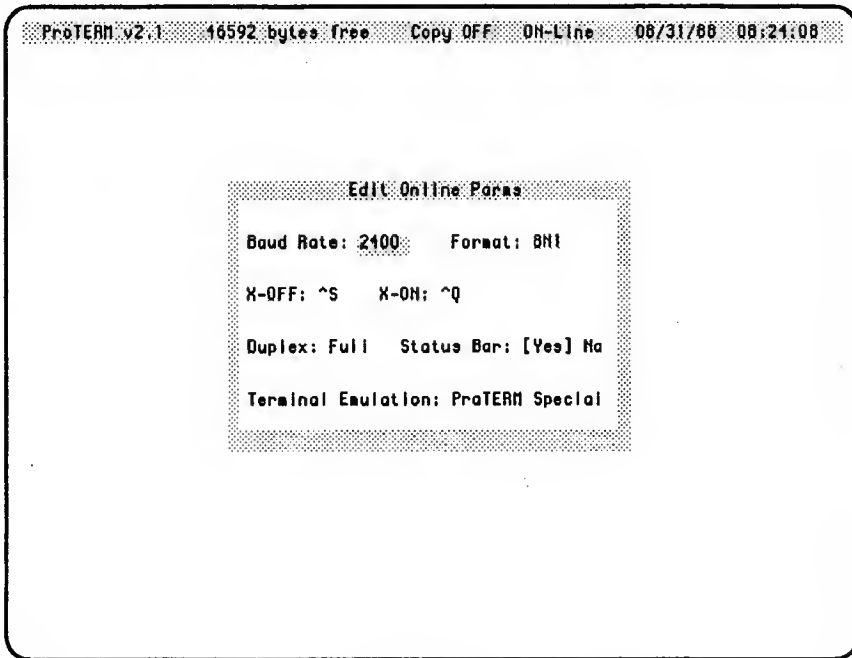


Figure 13

Baud Rate

You would not normally want to change the baud rate while on-line, but if it becomes necessary for some reason, it can be changed at this point. If you are connected to another system and are receiving only “garbage” characters, the problem may be that you and the remote system are not operating at the same baud rate. As discussed previously, use the arrow keys to change the baud rate.

Format

While there are a number of different formats possible, only four are supported by ProTERM. They are 8N1, 8N2, 7E1, and 7O1. Normally, “8N1” is used, but any of the others may be set. “8N1” represents 8 data bits, No Parity, and 1 stop bit. If you are connected to another system and are receiving only “garbage” characters, the data format is the next suspect after improperly matched baud rates. If you are sure that the baud rate is correct, use the arrow keys to switch the format to “7E1” (7 data bits, 1 stop bit and Even Parity).

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X-OFF

The character that is sent to the remote system to pause output may be changed here. The most common X-OFF character is control-S (^S), but others like "P" are in use on some systems. If you find that you lose data when issuing ProTERM commands, the X-OFF character may be improperly set.

X-ON

This is the character that is sent to the remote system to restart it after an X-OFF character has been sent. Normally, control-Q (^Q) is used, but some systems require other characters.

Duplex

This is the way in which data you type at the local console is echoed to the local screen. In full duplex, the remote system echos all characters back to the local system. In half duplex, data is displayed on the local screen as it is sent to the remote system. If you connect to another computer user using a terminal program, "Chat" duplex is the preferred mode. "Chat" mode provides you with an echo of what you type and adds a linefeed when you press return.

Status Bar

The status bar can be enabled or disabled at any time. After the on-line parameters window is closed, the status bar will either remain or disappear depending on the status of this parameter. If terminal emulation is in use, the status bar should usually be turned off.

Terminal Emulation

ProTERM will emulate whichever terminal is selected by this parameter. If "No Emulation" is set, ProTERM will operate normally, responding to the normal ASCII-defined characters. See also Appendix E, "Terminal Emulation."

Chapter 4: Day-To-Day Operations

Installing Hardware and Setting Defaults

To make a change in your system hardware configuration, program and pathname defaults, select the **⌘-[I]** command (see figure 14). Be sure, however, that any valuable data has already been saved. Both the copy buffer and SCROLLBACK are erased when hardware is installed.

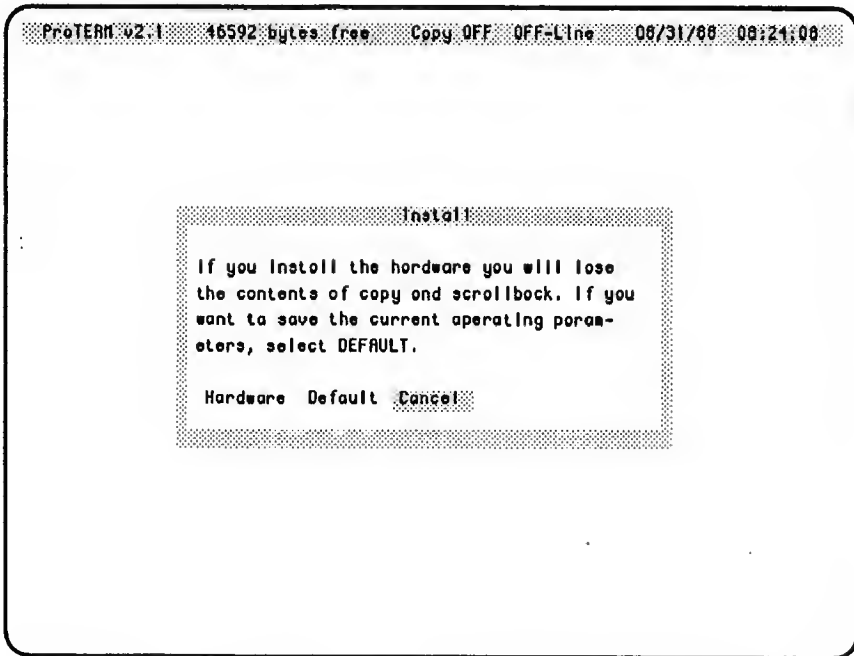


Figure 14

Hardware

Selection of “Hardware” will take you to the hardware installation program. This is the same program you used to initially configure ProTERM for your modem and printer. You may select this option to redefine your equipment; however, ProTERM will be restarted when you return.

NOTE: You will lose everything in the SCROLLBACK and Copy buffer.

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Default

Selection of "Default" will instruct ProTERM to save all of your settings. This will include your last used File Write formats, Printer parameters, and Send/Receive options. This also includes setting any name on your dial list as a default when you select [D], "Dial a System". ProTERM saves these defaults in a file called PT.PARM on your ProTERM directory. This feature can obviously save countless keystrokes and allow you to better customize ProTERM for your convenience.

The PT.PARM file also keeps track of five different disk paths or prefixes. These paths are initially undefined and default to the same location as PROTERM. As soon as you perform one of these functions, the path that you used will be remembered as the default for the remainder of the current ProTERM session. At any time that you feel that you have your paths set the way you most often use them, choose the "Install hardware" menu and the "Default" option and the paths will be saved to disk for automatic reload on your next ProTERM session.

NOTE: You need not worry about losing the data in your buffers, as "Default" will simply write the file PT.PARM and return.

The paths and their usages are:

- The Text File Loading Path; which includes the directory offered to load in PT.GLOBAL, where to find files for "Exec a procedure", "Print disk file", "Type disk file", and "Load in a file" for the Editor.
- The Text File Saving Path; which includes the directory offered to save a clipped section of SCROLLBACK to disk, where to save files for "Autosave to disk", "Write copy buffer", and file saves for the Editor.
- The Disk Commands Menu Path; which includes the directory offered to save and load SCROLLBACK whole buffers, where to begin the file utility jobs of Copying, Deleting, Renaming, Cataloging, and Directory Creating.
- The File Transfer Path; which includes the directory offered for "Send a file" and "Receive a file".
- The Main Program Overlay Path; which is where ProTERM was started from (and is not changeable from within ProTERM), and must contain PT.INSTALL, PT.ROUTINE, PT.XFER and PT.BIOS. This directory

Chapter 4: Day-To-Day Operations

is also where the following files must be, if they exist: PT.DIAL, PT.MACRO, PT.PARM, PT.WELCOME, and PT.STARTUP.

Quitting ProTERM

To exit ProTERM and return to ProDOS, use the \mathcal{C} -[X] command. Once this operation is confirmed, ProTERM will exit to ProDOS's Quit Code. Enter the pathname to log to and the name of the new application to run. More documentation on the ProDOS Quit Code is available in the Apple ProDOS Users Manual. If you booted ProTERM from a copy of the original disk, you will enter the SQUIRT program selector. SQUIRT is designed to make it simple to move between ProDOS applications. Detailed information about SQUIRT is provided in Appendix G.

V. Disk Functions

Many of ProTERM's commands involve manipulation of disk files. ProTERM has been written to take full advantage of all the features of Apple ProDOS. It supports the tree-type directory structure along with all ProDOS storage devices.

File Selection System

Many commands within ProTERM perform operations on disk files. All of these commands use a standard method for selecting files. This common file processing method is called the "File Selection System". The file selection system is not a command in itself; it is actually a special subsystem that is called by many of ProTERM's commands.

Whenever a filename is requested by a command, the file selection system appears (see figure 15). The system consists of two windows. The upper window displays the selected filename and allows new filenames to be entered. The lower window contains the names of the first seven files in the current directory; use the arrows to scroll for more. The name of the command requesting the file is present as the title of the upper window.

To enter a new filename in the current directory, simply type it in. As soon as typing starts, the input is placed in the upper window. To go back to the main file selection system, press either the up or down arrow key, otherwise, enter a [RETURN] following the filename entry to accept the filename.

Under Apple ProDOS, filenames may be up to 15 characters long and must start with an alphabetic character. The name may then contain numbers and periods. If you enter an illegal filename, ProTERM will convert it into a legal ProDOS filename. ProTERM changes illegal symbols to periods and shortens the name as needed. Since spaces are not allowed in ProDOS filenames, ProTERM will truncate or shorten a filename at the first space encountered.

To select a filename that is in the current directory, use the arrow keys to scroll through the list of filenames, pressing [RETURN] once the desired filename has been highlighted. As a shortcut, the filename may also be typed in as with new files.

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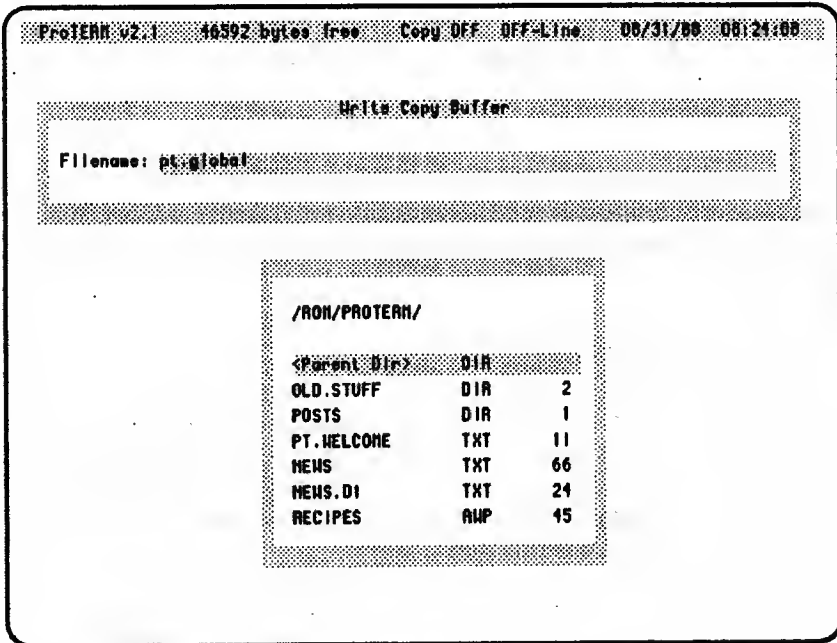


Figure 15

To create or select a filename that does not reside on the current directory, either type in the full filename or use the selection system to “move around” via the arrow keys. If you type in a filename, you must include the exact path on which it resides or where it will be created.

The first selection within the file selection window is always the parent directory. If the current directory is “/PROFILE/GAMES/FUN/,” the parent directory would be “/PROFILE/GAMES/.” To move to a subdirectory, just find and select its entry with [RETURN]. That directory will then be opened and its contents displayed.

If you select the parent directory for a volume name, such as selecting the parent directory for “/PROFILE/,” an on-line search will be made of all the volumes, and the volume names will be displayed. If there is a device on the system that does not contain a valid ProDOS volume, the unit slot and drive will be listed instead. If the unit is a disk drive, a disk may be inserted into the unit and if selected, ProDOS will check the unit; if it contains a valid ProDOS disk, ProTERM will place the volume name on the list. From this point, select the desired volume. While the list of on-line volumes is dis-

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played, you can not press the [ESC] key; you must select a volume before exiting this routine.

Duplicate Files

If an existing filename is selected when creating a new file, the "Duplicate Filename" window will appear. From this window, the existing file can either be deleted or have the new data appended to it. Select the option and ProTERM will continue with the original command.

File Locked

If ProTERM tries to write to a file that is locked, it will be unable to access the file and will bring up the "File Locked" window. From this window, you can either cancel the operation or unlock the file. Pressing [ESC] cancels the operation.

Writing a File to Disk

When writing a file from the copy buffer to disk, a number of parameters may be set to make the file easier to work with after it has been saved. For example, if the entire file were written to disk as a continuous stream of characters, it might be unusable by another word processor you might want to use to manipulate the file. If the specific parameters are important to the use for which the data is intended, you may set them as follows: (see figure 16).

Format Status

You have the choice of whether the file should be saved as individual lines, paragraphs, or special. The most common way to save the file is the Line mode. This is the way the data arrived and it means that there is a carriage return at the end of each line.

If you would prefer, you may reformat the data in ProTERM's Editor or any other editor. If you wish to change the text width or the side margins, you will not be able to without first removing the carriage returns at the end of each line. When you select the Paragraph mode, these carriage returns are automatically removed for you as the file is written to the disk. Single carriage returns are replaced with a space and consecutive carriage returns are left alone as that is usually the end of a paragraph.

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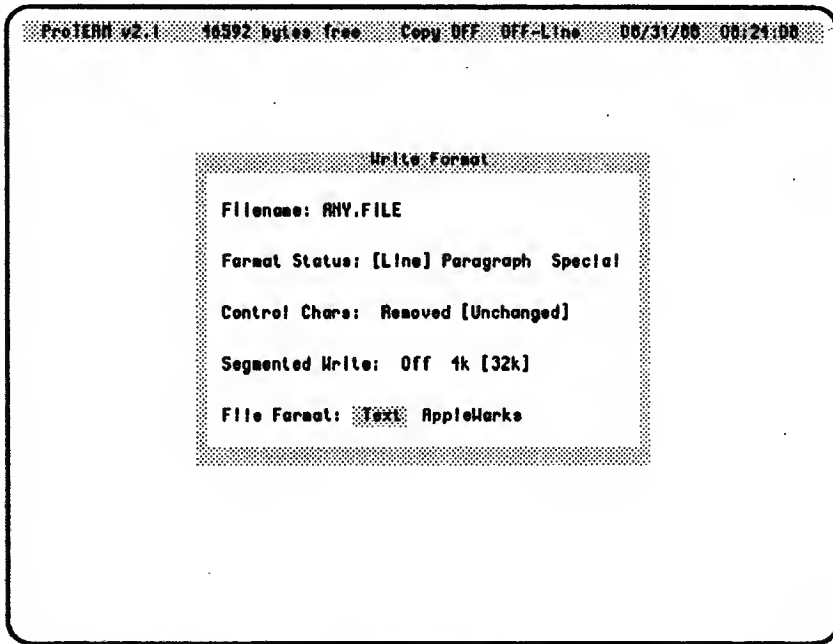


Figure 16

The Special mode will take the current text in whatever mode it is in and convert it to 80 column line mode. Perhaps the best use for this mode would be converting text that you received in a 40 columns with carriage returns at the end of each line. If you have ever used a word processor to find carriage returns and replace with spaces, globally reformatted, then inserted carriage returns at the end of the new lines, then you will appreciate ProTERM performing this tedious task for you.

Control Chars

Many times, control characters will be imbedded into text that is downloaded from a host. While this may not upset ProTERM, it can upset word processors and/or printers which may have their own definitions for the control characters. These control characters are stripped by default. Set "Control Chars" to "Unchanged" to leave the control characters in the data.

Chapter 5: Disk Functions

Segmented Write

While more commonly used with ProTERM's Autosave facility, segmented write is also useful when writing the copy buffer. When set to "Off," the document will be written in one contiguous block. When set to "4K," multiple 4K segments will be written; this was designed for posting to bulletin boards that have a 4K message limit. Choosing "32K" will set the segment size to 32K. All additional segments (of either size) beyond the first are numbered in sequence by a number appended to the end of the filename. If the file "TEST" is written, the second segment will be "TEST.01," followed by "TEST.02," etc.

File Format

The text may be saved to disk as either an ASCII text (TXT) file or an Appleworks Word Processor (AWP) file.

Auto Saving to Disk

In certain applications, it is desirable to save large quantities of data to disk without continually manipulating the copy buffer. "Autosave" automatically spools all data directly to a disk file from the time it is enabled until it is disabled. The **⌘-[A]** command invokes this feature. Once invoked, the file selection system is used to enter a filename. Once the filename is selected, the window of file parameters will be displayed (see above section on writing to disk) for you to specify how you want the information to be written to disk when the copy buffer is full.

NOTE: While Autosave is enabled, the copy buffer can not be used. An error message will be displayed if you attempt to enable the copy buffer.

While ProTERM is on-line and data is coming through, ProTERM periodically saves data to disk. The "X-OFF/X-ON" sequence is used to stop the remote host while the data is written to disk. To prevent too many trips to the disk, ProTERM will wait until your copy buffer has only about 2K of buffer space remaining before writing to the disk. At that time, your choice of segmenting size is used to break the file into pieces as necessary. If your buffer full (size varies) is larger than your segmenting size then multiple files will be written; if the segmenting size is greater, then a single file is written that will be appended during the next buffer write. For example, a 21K buffer using 4K segments will gather approximately 19K, then write out four 4K files and a 3K file, then return for more; on the next save, the 3K file will be

Chapter 5: Disk Functions

appended to make it 4K size, four more 4K files are written, and a 2K file is started. If, on the other hand, you selected 32K segmenting with a 21K buffer, the first buffer save would create a 19K file, and the next save would append the first 19K file to 32K and write the remainder as a 6K file.

When you hang up, you will be prompted to either save the last partially filled copy buffer full of data or let the buffer continue filling.

Viewing Disk Files

Use the `⌘-[T]` command to “type” the contents of a disk file onto your screen. Use the file selection system to enter the filename to be displayed. You will be offered both standard text (TXT) and AppleWorks Word Processor (AWP) files to choose from. Once the filename is selected, the screen will clear and the first page of the file will be displayed. Use the arrow keys to move forward and backwards through pages of the file. Press [ESC] to cancel viewing the file.

NOTE: You may type the contents of any file (not just TXT or AWP) by entering the file's name in the file selection window. You must know the exact full path to the file as its name won't be displayed.

Printing Disk Files

To print out the contents of a disk file, use the `⌘-[J]` command. Use the file selection system to enter the filename to be printed. You will be offered both standard text (TXT) and AppleWorks Word Processor (AWP) files to choose from. Once the filename is selected, the “Print” window will open from which you can select options to manipulate the data that is to be sent to your printer. By default, the parameters will be set to print the file in an “as is” state. No special text manipulation will take place. To print the data in this way, just select “Print” and press [RETURN]. For further information on printing, refer to Chapter 6, “Print Functions.”

Cataloging Files

The `⌘-[Z]` command will display the catalog of the current disk or subdirectory. All the fields of a standard 80 column catalog will be displayed except for the “aux type” field. Press [RETURN] to advance to the next page of the catalog. Press [ESC] to cancel the catalog.

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Disk Commands

The **␣-[Y]** command will display a menu of disk commands (see figure 17).

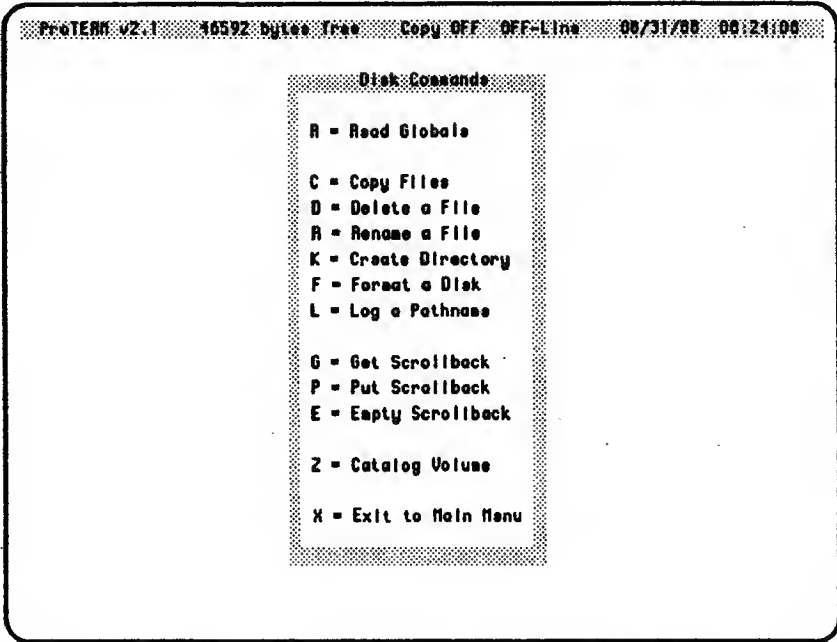


Figure 17

A - Read Globals

Pressing **[A]** will start the two window file selection process designed to load in a set of Global Macros. These macros are available from just about anywhere or anytime in ProTERM. The macro set may be named anything you like; however, it will be automatically loaded at startup if it is named PT.GLOBAL. You may keep as many different sets as you wish and freely swap in a new set at anytime. Refer to Chapter 9, "Macros" for more.

Chapter 5: Disk Functions

C - Copy Files

When you press [C] from the Disk Commands menu, the file selection system presents a three window screen. The top window and the left window are the standard file selection windows. As you highlight the file and press [RETURN], the name is entered in the third window on the right of the screen. You may continue in this manner, and the list on the right will grow. You may also change paths at any time as desired. When you have a complete list of files to copy, press [ESCAPE]. You will then choose the single destination for your batch list of files using the standard two window path selection system.

Warning: Copying files will clear the contents of the text editor/copy buffer.

D - Delete a File

Select the [D] command to delete a disk file. Simply select the file using the file selection system. If the file is locked, a window will appear that will allow the file to be unlocked.

R - Rename a File

Select the [R] command to rename a file. The standard two window file selector will appear for you to select the current filename. When you press [RETURN], a third window will open for you to type in the new name (see figure 18). Enter a legal name (see the ProDOS name discussion at the beginning of this chapter.) After ProTERM writes the new name to the disk, you will be left on the filename selector screen, ready to rename another file. When you are finished, press [ESC] to return to the Disk Commands menu.

K - Create a Subdirectory

Subdirectories are integral elements in the ProDOS tree filing system. While confusing to those new to computing, subdirectories are very useful in organizing files on large disk volumes.

To create a subdirectory on a volume, simply press the [K] command and use the file selection system to log to the proper volume and directory. Enter the name of the new subdirectory and press [RETURN]. ProTERM will attempt to create the specified subdirectory on the selected volume and directory. An error message is displayed if a problem occurs.

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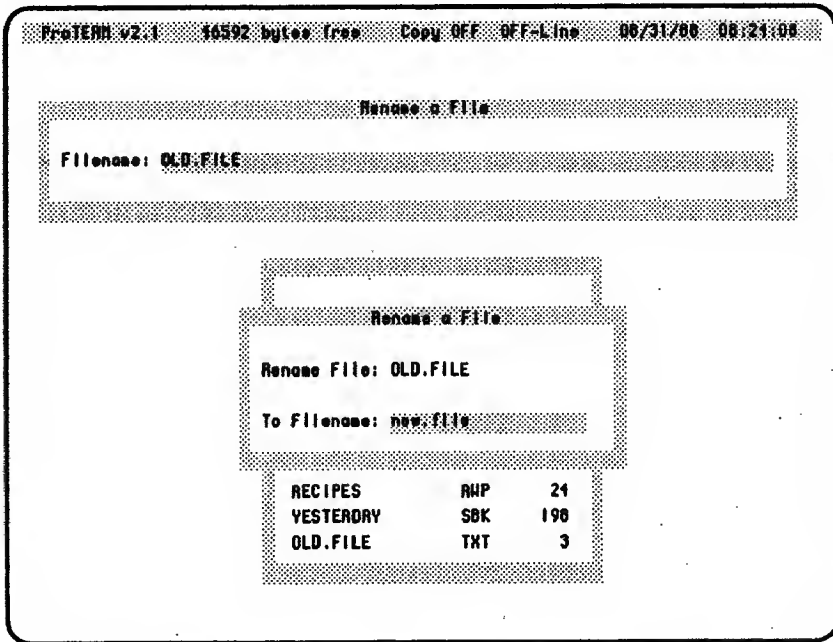


Figure 18

F - Format a Disk

Use the [F] command to format a disk. ProTERM can format both 5.25" and 3.5" disks. When the format command is used, ProTERM presents a list of the slot/drive locations of volumes that can be formatted. Use the arrow keys to select the appropriate slot/drive location of the volume. Once the volume location is selected, enter the name of the new volume. The volume name may be up to 15 characters in length. Do not enter the leading slash of the volume name. Once the volume name is entered, you are given one final chance to cancel. If you continue with the operation, the volume will be formatted with the given volume name and all existing data on that volume will be permanently erased.

L - Log a Pathname

The most difficult part of ProDOS is becoming familiar with the tree-type directory structure. While ProTERM attempts to simplify this process, it is still possible to get confused.

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When the [L] log command is selected, the normal two-window file selection system display will appear. The only difference is that only directories will be displayed in the lower window as opposed to directories and filenames. If the new pathname is known, type it in and press [RETURN]. If the name is not known, select the "<Parent Dir>" or subdirectory name to move within the directory structure.

Once the desired path has been established, choose the "<Select>" option to log on to this path.

G - Get Scrollback

If you have saved a SCROLLBACK image (see next command) to disk, you may press [G] at the Disk Commands menu to reload it. When you select this feature, you will be warned that the current SCROLLBACK will be replaced by the new image. You will then be presented with the standard file selection windows, but you will only be offered a choice of directories or previously saved SCROLLBACK images.

After reloading the SCROLLBACK image, you may scroll back through it, find text, or clip sections of it to the printer, copy buffer, or disk file - the same as when you first captured it.

P - Put Scrollback

You may save an exact image of the data that is in your SCROLLBACK buffer by pressing [P] at the Disk Commands menu. The image is written to disk as one large file. This is very useful as an alternative to Autosave; in fact, it would be most similar to using Autosave in the unsegmented file mode, except it does not use your copy buffer, and it does not send "X-OFF/X-ON" to append to the disk file when your copy buffer is full, and the SCROLLBACK data is left unchanged.

The file is given a unique file type as it is not a standard text file. When cataloged by ProTERM its type is shown as "SBK". Other programs will see the type as \$F2.

E - Empty Scrollback

If you call more than one system on the same ProTERM session, you may capture each SCROLLBACK image in its separate file, if you clear the SCROLLBACK buffer between calls. Pressing [E] from the Disk Commands menu will completely empty the SCROLLBACK buffer.

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Z - Catalog Volume

This command is the same as the [Z] command at the main menu and will display a catalog of the currently logged volume or path.

X - Exit to the Main Menu

Selection of the [X] command is self-explanatory and will simply allow a return to the main menu. You may also return to the main menu by pressing [ESC].

VI. Print Functions

Ways To Use The Printer

There are several different ways you may send data to your printer from ProTERM. The following sections will discuss these different ways.

Online Printing

You may direct that everything you receive be printed as you see it come onto the screen. This is done by selecting [P] or C -[P] from ProTERM's main menu. The printer will be toggled on or off by this action. The status of whether your printer is online or not is reported on the right side of the status bar when you change the status.

Keep in mind that, since the printer is generally slower than the modem (typically around 100 baud), the remote system will have to wait for your printer, thus delaying the process. If you are calling long-distance or are on a "pay-system," it is much more efficient to save the desired data in the copy buffer or SCROLLBACK, then print it out later after you are off-line.

Screen Print

At any time (except in the Editor), you may print a hard copy of the screen display. When you press C -[CTRL]-[P], with the printer on, the screen you are viewing will be printed. Since your printer can not distinguish inverse spaces from normal spaces, ProTERM changes them to asterisks (*) so you will be able to see them.

Quick Printing Without Control

Instead of printing while online, you may capture the data into the SCROLLBACK and later send a portion to the printer. This is done by entering SCROLLBACK and selecting a section. To select a section, use the arrow keys to scroll to the text you desire. You may also use the built-in SCROLLBACK "Find" to locate the beginning of your selection (see the SCROLLBACK section of Chapter 4 for more details). Then press [TAB] to enter the selection mode. Use the arrows to position the cursor to the first

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line of text. Press [SPACEBAR] to signal to ProTERM that you are establishing this line as the beginning. Use the arrow keys to highlight the area you are interested in and press [RETURN] when the entire selection is highlighted. ProTERM will ask you where to copy the selected text; the copy buffer, a disk file, or the printer. The printer should be on at this time, because as soon as you choose the printer, the text will be sent out. You will not be afforded any opportunity to reformat the text; it will go to the paper using the entire page, without any margins set.

Printing With Control

Printing The Copy Buffer

Referring to the previous situation, you may just as easily print your selection with control. One way to do this is to send the selected portion to the copy buffer instead of directly to the printer. Then use the C-[G] command to print the contents of the copy buffer. The "Print" window will open from which you can select options to manipulate the data that is to be sent to your printer. By default, the parameters will be set to print the data in an "as is" state. To print the data in this way, just select "Print" and press [RETURN].

Printing Disk Files

To print out the contents of a disk file, use the C-[J] command. Use the file selection system to enter the filename to be printed. You will be offered both standard text (TXT) and AppleWorks Word Processor (AWP) files to choose from. Once the filename is selected, the "Print" window will open as in the above situation. Again, you may print the data "as is" by selecting "Print."

The Print Parameters

If you want to specify how the data appears on paper, select "Edit" and change any of the parameters listed below: (refer also to figure 19).

Page Margins

ProTERM always prints text within certain margins. When the margins are set to "No," ProTERM will use the entire 8 1/2 by 11 page. In essence, the margins are still active, but they are set to 0-inch top, bottom, left, and right margins. When margins are set to "Yes," and the margin parameters are left as defaults, there will be 1-inch top, bottom, left, and right margins applied. In addition, when "Use Page Margins" is set to "Yes," any of the above

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margins may be changed. To change any of the margin values, use [RETURN] or [TAB] to highlight the one you want to change; then use the arrow keys to raise or lower the values.

Paragraph Processing

When "Paragraph Processing" is set to "Yes," the text to be printed will be "cleaned up" to fit within the current margins. Even if margins are set to "No," ProTERM will manipulate the data so that it will be printed as contiguous paragraphs. In brief, if the text has an average line width of 40 characters, several lines will be "glued together" to give long lines that fit optimally within the specified margins. If the lines are too long to fit within the margins, they will be "broken up" to fit neatly. All line breaks will take place in spaces between words so as not to make the text hard to read.

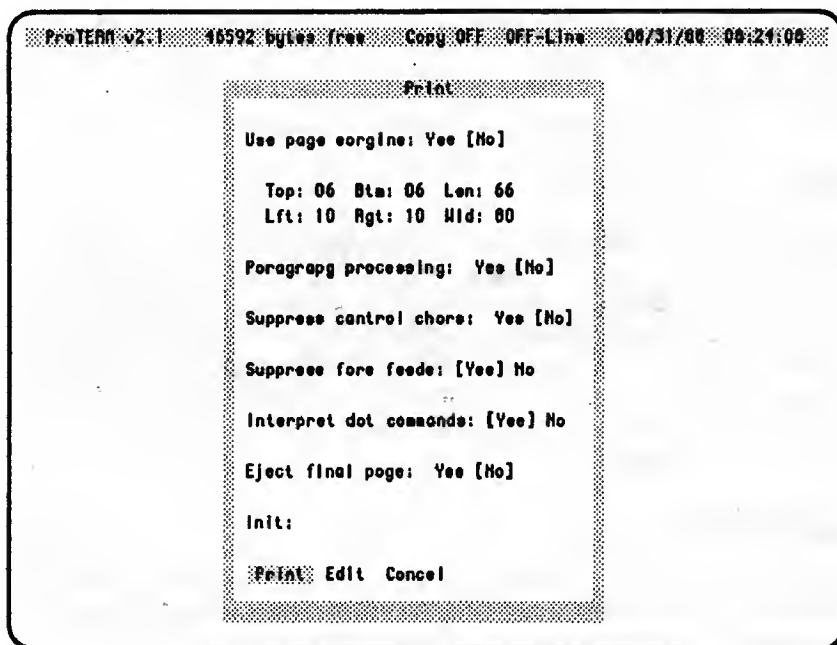


Figure 19

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Suppress Control Characters

A lot of text that comes across from remote systems contains invisible control characters. While these hidden characters do not bother ProTERM, they can give your printer a seizure. Generally, when your printer starts printing garbage and going into and out of its special print modes, it is caused by hidden control characters. Again, by default, ProTERM suppresses these characters. If you have inserted control characters into your text with the editor (perhaps to cause the printer to perform a special function), then set "Suppress control characters" to "No."

Suppress Form Feeds

One of the control characters that is commonly sent by a host is the "form feed" character. In telecommunications, it usually has the effect of clearing your screen, but when sent to your printer, it will eject the current page from your printer (imagine a series of 100 form feed characters thrown at your printer!). While there are some instances where this is desired, it normally wastes lots of paper. ProTERM suppresses form feeds by default. Set this parameter to "No" if you want form feeds to be sent to your printer.

Interpret dot commands

ProTERM's printing module is capable of interpreting "Dot Commands." These are two letter abbreviations following a dot (.). Those of you familiar with AppleWriter will have no trouble with these powerful text formatting commands (for more information refer to the Dot Commands section later in this chapter.) Generally, if you are printing text that you just received from over your modem, you would leave "Interpret dot commands" set to "No"; it should only be set to "Yes" after you have inserted some of these formatting commands into your text.

Eject final page

If this option is set to "Yes", ProTERM will send a form feed to the printer after the final text character; otherwise, the printer will stop on the last character.

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Init String

At the beginning of the print, ProTERM will send the init string to your printer. If this string is blank, nothing will be sent and your printer will continue to use its present settings. This is a simple way to send the same control string every time you print, as this string is saved in the file PT.PARM for your next session (see also the "Defaults" saving section in Chapter 4).

Use the Window Edit commands to enter the characters you need. Control characters are entered with a "^" (carat) and their ASCII letter equivalent (see also Appendix H, "ASCII Charts"). For example, to enter an 'Escape Null (\$27 \$00)', type: "^[@". You have as much space for your string as you see on the screen; if you need more, you may consider embedding the characters into the actual text.

Complete Control

You may gain complete control over how your data appears on paper by either embedding dot commands or control characters into the text. With your printer's manual, you may lookup the codes necessary to make your printer perform special functions such as letter quality, different pitch, subscripts, superscripts, etc. Or you may just desire to set the shape of the page, specifying the top, bottom, left, and right margins. In either case, you may accomplish this and more by inserting the proper commands into your text. Please refer to Chapter 7, "The ProTERM Editor" for information on how to insert these special commands.

Dot Commands

The "Dot" command is an easy method of embedding a print formatting command into your text. The set of commands in ProTERM is very similar to AppleWriter. A dot command is a period or dot (.) at the beginning of a line followed by a two letter abbreviation. It is important to note that the dot **MUST** be the first thing on a line in order for it to work.

Chapter 6: Print Functions

Width of the Page

The side margins may be set or changed at any time with the .LM# or .RM# commands. To set the base margin, enter the column number that the printing should start or stop in. To temporarily indent or outdent a section, you may let the margin be computed by using a "+" or "-" with the command.

.LM10 {set the left margin to 10}
.RM70 {set the right margin to 70}
 {this will give a printed width of 60 characters; at 10 cpi and an 8" platen width, there will be a 1" margin on both sides, with 6" of printed text space}
.LM+5 {move the left margin in 5 more from the current setting}
.RM-5 {move the right margin in 5 more from the current setting}
 {continuing in this same example, there will now be 5" of text with 1.5" margins on both sides}

Indenting

When dealing with paragraphs, you may indent the first line by using the .PM+# command and specifying the amount to be added to the current left margin. You may also cause all EXCEPT the first line to be indented by setting the left margin to where the body of the paragraph should be and using the .PM-# to specify the amount that the first line should hang out to be subtracted from the left margin. To cancel a paragraph margin, use the .PM command.

.PM+5 {the first line of all following paragraphs will indent by 5}
.PM-3 {the first line of all following paragraphs will outdent by 3}
.PM {the first line of all following paragraphs will equal left margin}

Justification

You may cause your text to line up with the left margin and have a ragged right edge (the same as this manual) by using the .LJ command. You may also do the opposite and have the text line up with the right margin by using the .RJ command. Or text may be centered between the current left and right margins with the .CJ command.

.LJ {all following text will be flush left}
.RJ {all following text will be flush right}
.CJ {all following text will be centered}

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Length of the Page

There are a number of factors that control the length of a printed page; the number of lines per inch, the maximum number of lines that will fit, the maximum number of lines to allow, the line interval, and the top and bottom margins. The following commands all require a number of lines to be entered with them (except .FF).

Set the total number of lines to allow between pages with the page interval (.PI) command. Set the maximum number of printed lines that you will allow with the printed length (.PL) command. The printed length includes the top and bottom margins.

.PI66 {a page shall consist of 66 lines}
.PL60 {allow printing only on the first 60 lines}

The top margin is the number of lines to skip down from the top of the following page before printing the first line of text. The bottom margin is the number of lines that must be left blank on the bottom of the current page.

.TM6 {at 6 lines per inch, this will leave a 1" margin at the top}
.BM6 {at 6 lines per inch, this will leave a 1" margin at the bottom}

The line interval may be set with the .LI# command. This is the number of extra blank lines to print after each text line. Use 0 for single spacing, 1 for double spacing, etc.

.LI2 {the following text is triple spaced}

To force a page break, use the .FF command. You may specify that if a certain number of lines are not left on this page, to leave the rest of the page blank and resume printing on the next page. With this conditional page break you are effectively grouping the following text so that it all prints on the same page.

.FF {go to a new page now}
.FF20 {go to a new page if there aren't 20 lines left on this page}

Headers and Footers

You may specify a header (top line) and/or a footer (bottom line) for all pages. The header and footer consists of three parts; the left, center, and right. All three areas must be addressed when using the .TL or .BL commands. The information for these areas are delimited by any character that you don't use in

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the actual information. You may get the current page number to be printed by using a (#). Any other information entered will be printed as a string exactly as it is entered. You may specify the starting page number with the .PN# command.

.TL*Help*** {print "Help" flush left and the page number flush right}
 {the center section is empty, so nothing prints there}
.BL//Page #// {print "Page " and the page number centered}
 {both the left and right sections are blank}
.PN1 {begin page numbering from 1}

Miscellaneous

You may tell your printer to underline parts of your text by inserting an underline token at the beginning and the end of the phrase. The underline token should obviously be some character that isn't used anywhere else in your text. In order to make sure the token is different, you must specify it with the .UT command.

.UT\ {define the underline symbol to be "\"}

You may tell your printer to double strike parts of your text by inserting an double strike token at the beginning and the end of the phrase. The double strike token should obviously be some character that isn't used anywhere else in your text. In order to make sure the token is different, you must specify it with the .DT command.

.DT% {define the double strike character to be "%"}

You may desire to leave yourself comments inside your data that you don't want to be printed. You may cause the following text to be ignored by the printer with the .EP0 command. The printer will ignore all until the .EP1 command. The default is .EP1.

.EP0 {set Enable Printer to off}
.EP1 {set Enable Printer to on}

Another method of controlling your printer is to send special control characters to it. One way of entering those characters is with the .SC command. All characters that follow .SC (until the end of the line) are sent through to the printer without alteration. Use the carat "^" for control characters.

.SC^[D^@^A {Escape D Null Ctrl-A, set slashed zero on ImageWriter}

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Dot Command Summary

.LM#	Set LEFT MARGIN to (#) of spaces from left edge
.RM#	Set RIGHT MARGIN to (#) of spaces from left edge (Printing width will be the difference between LM and RM)
.LM+#	Adds to the current LEFT MARGIN setting by (#)
.RM+#	Adds to the current RIGHT MARGIN setting by (#)
.LM-#	Subtracts from current LEFT MARGIN setting by (#)
.RM-#	Subtracts from current RIGHT MARGIN setting by (#)
.PM+#	Sets PARAGRAPH MARGIN to LM plus (#)
.PM-#	Sets PARAGRAPH MARGIN to LM minus (#)
.PM	Sets PARAGRAPH MARGIN equal to LM
.TM#	Sets TOP MARGIN to skip (#) lines at the top of the page
.BM#	Sets BOTTOM MARGIN to skip the last (#) lines on page
.LJ	LEFT JUSTIFY text flush with LM setting
.CJ	CENTER JUSTIFY text between LM and RM settings
.RJ	RIGHT JUSTIFY text flush with RM setting
.FF	Send a FORM FEED to start a new page
.FF#	Send a FORM FEED if not at least (#) lines left on page
.LI#	Set LINE INTERVAL to (#) of extra lines
.PL#	Sets the (#) of PRINTED LINES on the page
.PI#	Sets the PAGE INTERVAL to (#) lines per page
.EP0	Sets ENABLE PRINTER to off
.EP1	Sets ENABLE PRINTER to on
.TL****	Sets a TOP LINE header
.BL****	Sets a BOTTOM LINE footer
.PN#	Sets the starting PAGE NUMBER
.UT\	Sets the UNDERLINE TOKEN to (\) character
.DT\	Sets the DOUBLESTRIKE TOKEN to (\) character
.SCx	Sends the SPECIAL CHARACTER (x) to the printer

VII. The ProTERM Editor

This section of the manual concerns ProTERM's full screen text editor. ProTERM features a powerful text editor that rivals many of today's popular word processing programs. The editor in ProTERM is very similar to the word processor in AppleWorks; if you are familiar with the AppleWorks word processor you will feel right at home with the ProTERM editor.

The ProTERM editor will allow you to load, create, and save AppleWorks or standard text files. The ProTERM editor uses the same memory as the copy buffer. Although this buffer size is limited to 45K (the size varies with your hardware), larger files may be easily edited with the segmented loading and saving features.

Learning to use a new editor can be difficult. As with most applications, the best way to learn is by the "hands-on" approach. We recommend that you have ProTERM up and running so that you may try the various commands presented in each section of this chapter.

General

Editor commands covered in this section:

[ESC]	Exits the editor back to ProTERM's main menu
⌘-[?]	Displays the editor's "help" text

Like most of ProTERM's features, the editor is accessible from the main menu. Press [E] (or, if you are on-line, type the [E] key while holding down the ⌘ key) to enter the editor. To exit from the editor, simply press [ESC]; you will be returned to the main menu (or on-line if you are connected with another computer). When you are in the editor, you can get a list of commands by typing ⌘-[?].

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Creating a Document

Editor commands covered in this section:

␣-[N] Clear the contents of the editor

When creating a new document with the ProTERM editor, you will probably want to make sure that the copy buffer is clear since the editor uses the same memory as the copy buffer. If you haven't yet entered the editor, you can clear the copy buffer by typing [K], which is the standard ProTERM command for clearing the copy buffer. If you are in the editor and wish to erase it's contents, type ␣-[N] for a new buffer.

Loading and Saving Documents

Editor commands covered in this section:

␣-[L] Load a file into the editor

␣-[S] Save the file to disk under the current file name and format

Files are loaded into the editor at the current cursor position. This allows you to load a single file or build a file from several other files. The command that starts the load is [L]. If you are at ProTERM's main menu and off-line, entering [L] will bring up ProTERM's standard file chooser. If you are on-line or already in the editor, you must use the ␣-[L] command.

The file you choose will be loaded from disk into the editor's buffer at the current cursor position. You may determine the cursor position by either being in the editor where you can view it, or by knowing where ProTERM last left it. When you use the [N] command, the cursor position is put at the beginning of the editor's buffer. After a file is loaded, the cursor position is left at the end of the text. This allows you to load another file without moving the cursor, and the two files will become one.

If the file you are loading is larger than the available buffer space, then the editor will load as much as will fit from the beginning of the file. If you want the load to begin somewhere other than the beginning, then you must make sure the cursor position is where you want the new text to be loaded, exit the editor to ProTERM's main menu, and use the ␣-[L] command.

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The segmented loading process is automatic and happens any time you are attempting to load more than will fit into the buffer. A prompt line will be displayed at the bottom of the screen that asks you to set the load point. This process is very similar to "Type a file" as you are shown a screen full of the file's data and may use the arrow keys to go forward one screen (right or down arrows) or backward one screen (left or up arrows). When you see the point on the screen that you would like to begin loading from, press [RETURN] and the file will be loaded starting with the first character that you see on the selected screen. As with other loading, the new data is appended to the buffer at the cursor point and the load will stop when the buffer is full.

After loading your file or files, you may begin editing. If you are not already in the editor, press [E] or ⌘-[E] to enter the editor.

When you first enter the editor, the status bar displays a message stating that help can be obtained by typing ⌘-[?]. The first time you press a key, ProTERM removes this message and displays the name of the current document in its place. This name is followed by either a /A (if the file is in AppleWorks format) or a /T (if the file is a standard text file).

When you are ready to save your document, type ⌘-[S]. This will prompt ProTERM to open its "Save..." window. From here, you can save the file with its current name and formatting parameters (select "Save"), rename the file or change its formatting parameters (select "Rename"), or return to the editor (select "Cancel").

If you select "Save," the document will be saved back to disk with the same name that was last loaded. The formatting parameters, such as page margins, and file type (TXT or AWP) will remain the same.

If you select "Rename," you will be able to rename the document and move to a different subdirectory if necessary. In addition, you will be able to change the formatting parameters (such as page margins) and the file type.

NOTE: If you want to convert a standard Apple text (TXT) file to an AppleWorks (AWP) file, use the "Rename" option when saving the file back to disk. This way you will be able to select the proper format (text or AppleWorks) for the file before it is saved to disk.

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Moving Around in the ProTERM Editor

Commands covered in this section:

[LT]:	Move left a space
[RT]:	Move right a space
[UP]:	Move up a line
[DN]:	Move down a line
␣-[LT] or [CTRL]-[Q]:	Move left a word
␣-[RT] or [CTRL]-[W]:	Move right a word
␣-[UP] or [CTRL]-[R]:	Move to previous page
␣-[DN] or [CTRL]-[T]:	Move to next page
[CTRL]-[B]	Move to the beginning of your document
[CTRL]-[E]	Move to the end of your document
[CTRL]-[A]	Place cursor at beginning of current line
[CTRL]-[S]	Place cursor at the end of current line
[TAB]	Move to the next tab stop
␣-[E]	Change between insert and overstrike cursors
␣-[1] to ␣-[9]:	Position within your document

The first thing you will probably notice when you enter the ProTERM editor is the cursor. A cursor is simply a marker that indicates where the next keypress will be placed on the screen. ProTERM features two different cursors, the "insert" cursor (a flashing line) and the "overstrike" cursor (a flashing block).

With the insert cursor, any text you type will be inserted at the cursor and any text right of the cursor will move over to make room. With the overstrike cursor, any text you type will replace what is already there. You can switch between the insert and overstrike cursors by typing ␣-[E].

To move the cursor one space to the left, press the left arrow key. To move the cursor one space to the right, press the right arrow key. Pressing the up arrow key will move the cursor up a line; pressing the down arrow key will move the cursor down a line.

Holding down the ␣ key while pressing one of the arrow keys will cause the cursor to jump a larger distance. For example, ␣-[LT] will cause the cursor to move one word to the left, while pressing ␣-[RT] will cause the cursor to move one word to the right. You can move up or down a page by holding down the ␣ key and pressing either the up or down arrow keys.

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Many C commands have control-key equivalents. For example, the previous four arrow commands may be duplicated with [CTRL]-[Q] (word left), [CTRL]-[W] (word right), [CTRL]-[R] (previous page), and [CTRL]-[T] (next page).

Pressing [CTRL]-[A] will place the cursor at the beginning of the line you are typing. Pressing [CTRL]-[S] will place the cursor at the end of the line you are typing.

To move to the beginning of your file, press [CTRL]-[B]. To move to the end of your file, press [CTRL]-[E].

By pressing the [TAB] key, you can move the cursor right to the next tab stop. Tab stops are placed every 8 spaces and cannot be changed.

You can move to various points within your document by holding down the C key and pressing one of the number keys. Each number represents approximately 1/8th of your document.

Deleting and Inserting

Commands covered in this section:

[DELETE]	Deletes the character left of the cursor
[CTRL]-[D]	Deletes the character the cursor is on
[CTRL]-[Z]	Deletes an entire line of text
C -[Y] or [CTRL]-[Y]	Deletes from the cursor to the end of the line
[CTRL]-[V]	Deletes the current word
[CTRL]-[C]	Select block of text with up and down arrow keys
C -[D]	Delete selected block of text

You can remove the character that is to the left of the cursor by pressing the [DELETE] key. The character to the left of the cursor is deleted; the cursor and everything after it is moved one space to the left.

You can delete the character the cursor is on by typing [CTRL]-[D]. The character at the cursor is erased and everything right of the cursor is moved one space to the left.

If you want to delete an entire word, first position the cursor at the start of the word and then type [CTRL]-[V]. The word the cursor is on is then deleted and everything after the word is moved to the left to fill in the new space.

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Pressing [CTRL]-[Y] or ⌘-[Y] allows you to delete any text on and to the right of the cursor, all the way to the end of the line. No text left of the cursor is deleted.

To delete the line you are on, press [CTRL]-[Z]. The line you are on is deleted and everything following is moved up a line.

To delete a block of text, such as a paragraph, move to either the first line or the last line of the block and press [CTRL]-[C]. The current line you are on will be highlighted; use the up or down arrow keys to select other lines. Once you have highlighted your selection, press ⌘-[D]. ProTERM will then respond by asking:

Do you wish to delete this selection (Yes/No)?

When you type [Y], the text you have highlighted will be permanently removed from your document.

NOTE: The ProTERM editor does not have an "undo" command. Once you have deleted a block of text, it is gone forever. You can mimic an "undo" command by using the "cut to clipboard" command instead of deleting the block. This way, data can be retrieved by using the "paste from clipboard" command. More information on cutting and pasting can be found in the section labeled "Cutting and Pasting."

Finding and Replacing

Editor commands covered in this section:

⌘-[F]	Find a word or phrase
[CTRL]-[X]	Move to the next match during a find
⌘-[R]	Replace a word or phrase with another word or phrase
[CTRL]-[P]	Insert a control character at the cursor

Sometimes you need to locate a certain word or phrase within your document. If you were to do this manually, it would probably take you a substantial amount of time. Fortunately, ProTERM can automatically search your document for a word or phrase and will replace them with different words or phrases if you so desire.

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To find a word or phrase, type **⌘-[F]**. ProTERM will respond by asking:

Find what text?

Type the word or phrase you wish to find and press **[RETURN]**. Either upper or lower case letters may be used, as case is ignored. ProTERM will then scan the entire document (starting at the beginning) and place the cursor on the first match it finds. To move the cursor to the next match, type **[CTRL]-[X]**. ProTERM will leave the cursor on the last match when it can not find any further occurrences of the text.

To replace a word or phrase, type **⌘-[R]**. ProTERM will respond by asking:

Replace what?

Type the word or phrase you wish to replace and press **[RETURN]**. ProTERM will then respond by asking:

Replace with what?

Type the new word or phrase that is to replace the old one and press **[RETURN]**. ProTERM will then respond by asking:

Replace which (All/Some)?

ProTERM now asks if you wish to replace all or just some of the occurrences of the old text. Type **[A]** (for "all") or **[S]** (for "some") to make your selection.

If you choose to replace all of the occurrences, ProTERM will move through the entire document and unconditionally change each match of the old text with the new text. If you choose to replace just some of the occurrences, ProTERM will pause at each match and ask if it is to be replaced with the new text.

Replace this one (Yes/No)?

Press **[Y]** (for "yes") or **[N]** (for "no") to answer this question. You can also type **[ESC]** to cancel the replace function and return to the editor.

When ProTERM cannot find any more matches to the old text, it will leave the cursor on the last text changed and prompt you with "Text was not found. Press **[RET]**."

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You may find or replace control characters also. When the appropriate question is asked (find what, or replace what, or replace with what) use the miscellaneous command [CTRL]-[P] to enable entry of control characters. The cursor will momentarily become a full block and you should enter the control character's letter. The control character will be displayed as an inverse uppercase letter and the cursor revert to an underline. As an example, to find a carriage return, enter [CTRL]-[P] M.

The [CTRL]-[P] command is not restricted to finding and replacing; it may be used to insert a control character anywhere in your document. When you press [CTRL]-[P], ProTERM will prompt with:

Insert control character (A-Z, CR=Cancel):

You may enter a single alpha character from A to Z. ProTERM will convert the letter you enter to the control character range (hex values \$01 - \$1A) and display it as an inverse uppercase letter. This should serve most purposes; however, if you need to enter other control characters, you must use either the "Init String" or the ".SC" dot command (see Chapter 6, "Print Functions").

Cutting and Pasting

Editor commands covered in this section:

␣-[X]	Cut the selection to the clipboard
␣-[C]	Copy the selection to the clipboard
␣-[V]	Paste the clipboard at the cursor
␣-[B]	Display the size of a selection

ProTERM allows you to move large blocks of text (such as paragraphs) to different positions using a method called "cutting and pasting." Cutting and pasting involves copying the desired text to a temporary storage location - usually referred to as the clipboard - and then copying the contents of the clipboard to the new location.

To select a block of text with ProTERM, type [CTRL]-[C]. The current line you are on will be highlighted; use up or down arrow keys to highlight other lines.

NOTE: Keep in mind that the ProTERM clipboard can hold only 4,096 bytes (about 51 full lines). ProTERM will not let you move more than 4,096 bytes of data to the clipboard and will display an error message if you try to do so. You can get the size of a selected block of text by typing ␣-[B].

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Once you have selected the block you wish to move, press **⌘-[X]**. The selection is copied to the clipboard and removed from your document; any text after the selection will move up to fill in the empty space.

An alternate command, copy, allows you to copy a selection to the clipboard without removing it from your document. This command is useful if you have a paragraph or a table that you wish to duplicate inside your document. To copy a selection to the clipboard without removing it from your document, type **⌘-[C]**.

WARNING: *You can only have one selection on the clipboard at any one time. If you try to cut or copy more than one selection to the clipboard, the previous selection will be lost.*

Once you have copied your selection to the clipboard, move the cursor to the new line where you want the clipboard contents to be placed. Once you have positioned the cursor, type **⌘-[V]**. Your selection is now reinserted, starting at the line the cursor is on. The information remains in the clipboard and may be pasted as many times as you wish. The clipboard is "cleared" by refilling it with another selection.


Reformatting Text

Editor commands covered in this section:

⌘-[O]	Reformat the selection as either a paragraph or lines
[CTRL]-[O]	Merge two paragraphs into one
[CTRL]-[G]	Merge lines into a paragraph
[CTRL]-[L]	Add a carriage return to the end of the line
[CTRL]-[A]	Delete leading and trailing spaces from a line

Text downloaded from a bulletin board or other electronic service will often contain embedded carriage return characters. These characters are used to mark the end of a line and instruct the terminal program's cursor to move down a line. When you're using a word processor, these characters are generally undesirable because they make reformatting quite difficult. One of the features of the ProTERM editor is the ability to remove these carriage return characters so that your document may be formatted easily.


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The first thing you need to do is select the text you wish to reformat. To select a block of text with ProTERM, type [CTRL]-[C]. The current line you are on will be highlighted; press the up or down arrow keys to highlight other lines. Once you have selected the text, press -[O]. ProTERM will respond with the following message:

Format as (Line/Paragraph)?

If you wish to reformat the selection as a paragraph, type [P] and press [RETURN]. ProTERM will then move through the selection and format the selection into a paragraph by removing all single carriage returns. Normally the only carriage return remaining when this function is complete will be at the end of the paragraph. Two or more carriage returns in a row are left alone.

If you wish to format the selection as a group of lines, type [L] and press [RETURN]. ProTERM will then move through your selection and insert a carriage return character at the end of each line. If you would prefer to affect only one line at a time, you may position the cursor anywhere in a line and enter [CTRL]-[L]; a carriage return will be inserted after the last word on the line if one does not already exist.

When you capture text that was originally written with tabs or centering, it will be received without the tab or centering commands and instead contain spaces. If you intend to completely reformat the section of text, it will be necessary to remove those spaces. You may achieve this by positioning the cursor anywhere in the line and entering [CTRL]-[>] (the control key with the number six key). ProTERM will remove all spaces from the leftedge to the first character and all spaces from the last character to the end of the line. Following text lines are moved up unless the line ends with a carriage return.

There are two additional methods for reformatting your text. They are generally used on smaller sections of text.

You may concatenate two (or more) lines into one line with the [CTRL]-[O] command. This command may also be used to merge two paragraphs into one. Position the cursor anywhere on the first line. Press [CTRL]-[O] and the following line will be dragged up and joined with the first line. Carriage returns are converted to spaces. The cursor will remain in the same position when this command is finished. You may repeat this command and another line may also be dragged up and joined to the first. No more lines will be joined to the first line when it exceeds 80 characters.

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You may glue lines together with the [CTRL]-[G] command. With this command you may convert a small section of text from lines to a paragraph. Position the cursor anywhere on the first line. Press [CTRL]-[G] and the following line will be dragged up to join the first, provided the first line ends with a carriage return and the second line begins with a character (not a space and not a carriage return). The cursor will move forward to the end of the first line and the carriage return will be converted to a space. You may repeat this command until encountering a carriage return followed by a space or another carriage return.

NOTE: The only time line formatting is desirable is when you plan on uploading the document to an electronic service as a bulletin or letter. The editing capabilities of many on-line services are quite limited and depend on the use of carriage returns to mark the end of each line. You will find that you usually will not be able to successfully send a document to an on-line service if it is not formatted as lines.

Special Block Functions

Editor commands covered in this section:

[CTRL]-[C]	Select a block of text using the up and down arrow key
␣-[A]	Send the selection to a remote system (such as a BBS)
␣-[P]	Send the selection to your printer
␣-[W]	Write the selection to disk
␣-[B]	Display the size of a selection

There are a few commands that are used to perform a special function on a block of selected text. To select a block of text in ProTERM, type [CTRL]-[C]. The current line you are on will be highlighted; use up or down arrow keys to highlight other lines.

Use the ␣-[P] command to send the block of selected text to the printer. ProTERM will open its "Print parameters..." window and allow you to print the selection to paper (more information on printing and the "Print parameters..." window can be found in Chapter 6, "Print Functions").

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To send the block of selected text to a remote system (if you are on-line), type **␣-[A]**. ProTERM will open its "Send ASCII..." window and allow you to send the selection to a remote system (more information on sending files and the "Send ASCII..." window can be found in Chapter 8, "Sending and Receiving Files").

To write the selection to disk, use **␣-[W]**. ProTERM will open its "Write a file..." window and allow you to write the selection to disk (more information on ProTERM's file selection system and the "Write a file..." window can be found in Chapter 5, "Disk Functions").

You can see the size of a selection by typing **␣-[B]**. If no selection is highlighted, pressing **␣-[B]** will cause ProTERM to display the size of the current document.

Miscellaneous Commands

Editor commands covered in this section:

[CTRL]-[P]	Insert a control character at the cursor
␣-[Z]	Toggle the CR display mode on or off
␣-[TAB]	Toggle the TAB mode
[CTRL]-[C]	Select a block of text using the up or down arrow keys
␣-[K]	Change the case of a selected block of text

One of ProTERM's miscellaneous commands will allow you to change a selection from upper to lower case, or vice versa. To use this command, first press **[CTRL]-[C]** to enter the text selection mode. The line you are currently on will be highlighted; use the up or down arrow keys to highlight other lines. Once you have selected the text you wish to change, type **␣-[K]**. ProTERM will respond with the following message:

Change case to (Upper/Lower/Mixed)?

If you wish to change the selection to upper case, type the **[U]** key and press **[RETURN]**. ProTERM will move through your selection and change all the lower case letters into upper case.

If you wish to change the selection to lower case, type the **[L]** key and press **[RETURN]**. ProTERM will move through your selection and change all the upper case letters into lower case.

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If you type [M] and press [RETURN], ProTERM will move through your selection and change all the letters to lowercase except for those following the period punctuation mark. Letters following periods will be capitalized.

Another one of ProTERM's miscellaneous commands will allow you to show carriage return symbols. If you type ⌘-[Z], all the carriage return characters in your document will be displayed with a bent arrow. Pressing ⌘-[Z] again will hide these arrows.

Pressing the [TAB] key while holding down the ⌘ key will allow you to switch between real tabs (a [CTRL]-[I] symbol) or "space" tabs. Many Apple word processors do not use real tabs so therefore this command will rarely need use. However, if the word processor you normally use needs a [CTRL]-[I] symbol to mark a tab, make sure you turn them on with this command.

Finally, if you wish to embed control characters in your document you can do so by pressing [CTRL]-[P] followed by the control character you wish to imbed. It will be placed at the cursor and indicated as an inverse letter.

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Summary of the Editor Commands

Loading and Saving Documents

- ⌘-[L] Load a file into the editor
- ⌘-[S] Save the file to disk under the current file name and format
- ⌘-[N] Clear the contents of the editor

Movement commands

- [LT]: Move to the next character to the left
- [RT]: Move to the next character to the right
- [UP]: Move to the next line up
- [DN]: Move to the next line down
- ⌘-[LT] or [CTRL]-[Q]: Move to the next word to the left
- ⌘-[RT] or [CTRL]-[W]: Move to the next word to the right
- ⌘-[UP] or [CTRL]-[R]: Move to the previous page
- ⌘-[DN] or [CTRL]-[T]: Move to the next page
- [CTRL]-[B] Move to the beginning of your document
- [CTRL]-[E] Move to the end of your document
- [CTRL]-[A] Move to the beginning of the current line
- [CTRL]-[S] Move to the end of the current line
- [TAB] Move to the next tab stop
- ⌘-[1] to ⌘-[9]: Move to an approximate position

Deleting/Inserting Text

- [DELETE] Deletes the character left of the cursor
- [CTRL]-[D] Deletes the character the cursor is on
- [CTRL]-[Z] Deletes an entire line of text
- ⌘-[Y] or [CTRL]-[Y] Deletes from the cursor to the end of the line
- [CTRL]-[V] Deletes the current word
- ⌘-[D] Delete selected block of text

Commands for Cutting and Pasting Text

- ⌘-[X] Cut the selection to the clipboard
- ⌘-[C] Copy the selection to the clipboard
- ⌘-[V] Paste the clipboard at the cursor

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Finding and Replacing Text

␣-[F]	Find a word or phrase
[CTRL]-[X]	Move to the next match during a find
␣-[R]	Replace a word or phrase with another word or phrase

Formatting Commands

␣-[O]	Reformat the selection as either a paragraph or lines
[CTRL]-[O]	Merge two paragraphs into one
[CTRL]-[G]	Merge lines into a paragraph
[CTRL]-[L]	Add a carriage return to the end of the line
[CTRL]-[^]	Delete leading and trailing spaces from a line

Special Block Functions

[CTRL]-[C]	Select a block of text using the up or down arrow keys
␣-[A]	Send the selection to a remote system (such as a BBS)
␣-[P]	Send the selection to your printer
␣-[W]	Write the selection to disk
␣-[B]	Display the size of a selection

Miscellaneous Commands

[CTRL]-[P]	Insert a control character at the cursor
␣-[Z]	Toggle the CR display mode on or off
␣-[TAB]	Toggle the TAB mode
␣-[K]	Change the case of a selected block of text
␣-[E]	Change between insert and overstrike cursors
[ESCAPE]	Exits the editor back to ProTERM's main menu
␣-[?]	Displays the editor's "help" text

VIII. Sending And Receiving Files

Some of ProTERM's greatest power is in its ability to send and receive data from remote systems. ProTERM has the capability to send single files, a selected list of files in a batch mode, or even entire disks!

While there is a specific command to send text to a remote system, there is no "command" for receiving text. Instead, such features as the "Copy Buffer" and "SCROLLBACK" must be used.

Sending a Text File

ProTERM will allow any text file to be sent to a remote system. Through the control of certain parameters, options such as timing, handshakes, and line widths may be controlled. To send a text file, select the C-[S] command. Use the arrow keys to highlight "ASCII" and press [RETURN]. Use the file selection system to enter the filename. Once the filename is selected, the following parameters must be set (see figure 20).

Mode

Two different send modes are available. Line mode sends a file one line at a time while waiting for an optional prompt at the beginning of each line. Character mode sends data one character at a time, waiting for its echo from the remote system before sending the next character. Character mode is really only effective with full duplex systems. Though it is slower, character mode generally avoids timing and overrun problems.

Prompt

Before sending each line, ProTERM can be made to wait for a specific prompt character from the remote system. Normally, the remote system must be instructed to give prompts if this feature is to be used. If the prompt character is known, enter it here. Otherwise, leave this field blank.

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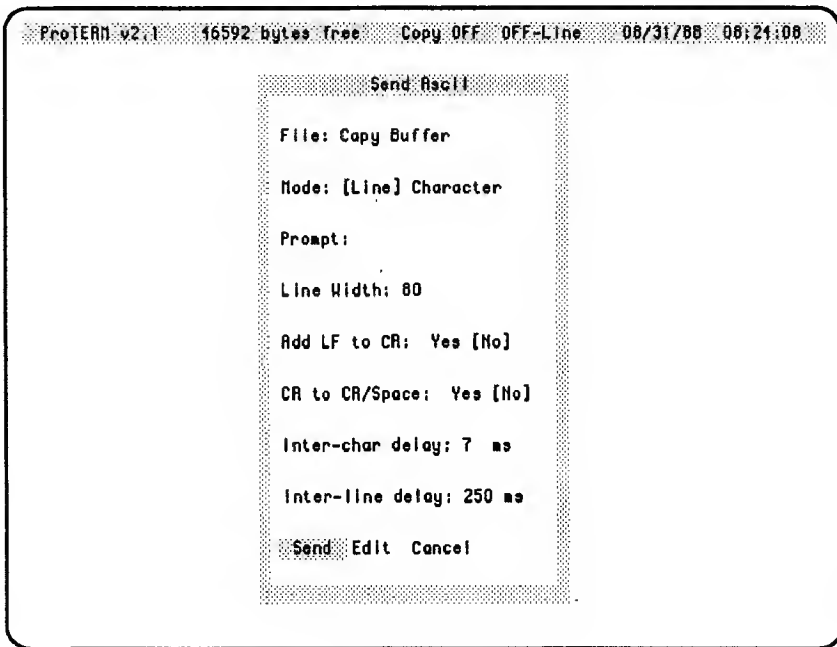


Figure 20

Line Width

Certain systems have maximum line size limitations. For example, MCI Mail will only allow 79 characters per line. Many times a document contains lines that exceed this limit. By setting the line width, ProTERM will automatically insert a carriage return character where needed so that none of the lines of the file exceed the specified line width.

Add LF to CR

As a file is sent, each line is followed by a carriage return character to indicate the end of the line to the remote system. Some systems require that the return character be followed by a linefeed character. Setting this parameter to "On" will insure that a linefeed is sent after each return character.

CR to CR/Space

Some systems attempt to determine the end of your file by waiting for a blank line with only a carriage return. If this would result in a premature end of your file, you may get around this problem by ensuring that your blank

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lines aren't really blank. When you select this feature, ProTERM will search for the occurrence of two adjacent carriage returns and insert a space between them, resulting in each line beginning with a space.

Inter-char Delay


Between each character sent, a slight delay may be specified to insure that the remote system does not lose characters. The timing of this delay is expressed in units of 10 milliseconds. 10 milliseconds is equal to 1/100 of a second. A 50 millisecond inter-character delay is not uncommon.

Inter-line Delay

Between each line sent, a slight delay may be specified to insure that the remote system does not lose any characters. The timing of this delay is expressed in units of 100 milliseconds. 100 milliseconds is equal to 1/10 of a second. A 300 millisecond inter-line delay is not uncommon.

Sending with a Protocol

Any type of file may be sent using any of the available protocols, although certain protocols are more efficient than others. The most efficient protocol supported by ProTERM is "Zmodem". If the remote host supports Zmodem, it should be used; otherwise, "Ymodem" is the next best choice. If you are using a 7 data-bit communications link, "Kermit" must be used. "Xmodem" is the most common, and many times, the only protocol available. If you are calling using PC Pursuit, and both systems support it, you should use either "Transit" or Zmodem. See also Appendix D, "Protocols & Error Messages" for more information.

To send data, whether it be single, multiple files, or a disk, to a remote host, that host must first be told to begin its receive mode. The commands to initiate receive mode on the remote system will vary from system to system. Wait until the remote system is ready to receive data before selecting the  [S] command to send. Once the protocol has been selected, two additional parameters must be set.

Send Mode

There are four different methods for sending data. The first mode is "File" which sends a single file. The second mode is "Batch" which sends one or more files in a single transfer session. The third mode is "Binary II" which sends one or more files in the Binary II encoding format. The last mode is "Disk" which will send an entire 5.25" disk or 3.5" disk in a "DDD"

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compatible compressed format. These four modes may be selected by using the right or left arrow keys.

Most bulletin boards only support "File" mode. Some bulletin boards and terminal programs support "Batch" and/or "Binary II" mode. "Disk" mode can be used when sending to either another ProTERM, or to a bulletin board or some other host that supports "File" mode. The disk is sent in file form so that the remote host need not be a ProTERM. If the remote host was a bulletin board, a different ProTERM user could later call up and download the compressed disk.

Max Retries

Max retries sets the number of consecutive errors that may occur before the transfer is cancelled. By default, the maximum is set to 10. This does not affect the number of total errors that may occur during the transfer.

Sending a File

To send a single file to a remote system, simply select the file after the send parameters have been set. The file will then be automatically sent and ProTERM will return to the on-line mode after completion of the send.

Example: File Send

The following example contains the exact sequence of events that would take place if you were to send a file. In this example, the file "DATAFILE" will be sent from ProTERM to a bulletin board system.

```
.....
      EXfer: The Extended Transfer Module
              Version 4.0
.....

XT: Please enter the type of XMODEM you are using...

[1] DOS 3.3 Xmodem
[2] ProDOS Xmodem
[3] Standard Xmodem
[4] No Xmodem, ASCII only

XT: Which ? 2
```

You enter "2" to use ProDOS Xmodem.

001: Public Domain Files

#	Filename	Typ	I	Size
---	----------	-----	---	------

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```
002 ACOS.PARKER      BIN   Y   3
003 ACOS.PARKER.SRC  TXT   Y  24
004 ALU              BIN   N  16
005 ALU.DOC          TXT   N  23
```

```
[::] ->Receive: DATAFILE
```

```
XT: Ready to receive...
```

You would now press **␣-[S]** to tell ProTERM to go into send. You would then select the "Xmodem ProDOS" send method since that is what EXfer was told to use. Leave the send mode in "File" since a single file is being sent. Just press [RETURN] at "Max Retries" to leave them at their default. Use the ProTERM file selection system to enter the name "DATAFILE." After entering the filename, ProTERM will begin sending the file.

Recapping these steps:

- 1) Press **␣-[S]**
- 2) Select "Xmodem ProDOS"
- 3) Use right or left arrow keys to set "Send Mode" to "File"
- 4) Leave "Max Retries" at "10"
- 5) Enter "DATAFILE" filename

Sending Batch

To send a batch of files use the **␣-[S]** command. Select the desired protocol and set the "Mode" parameter for "Batch". Next, use the file selection system to enter each file followed by a [RETURN]. As each file is selected it will be displayed in a third window, to the right of the lower window, in the file selection system (see figure 21). When file selection is complete, use the [ESC] key to exit selection. ProTERM then presents a summary of the files at which time the transfer may be started or canceled. Once the transfer is complete, ProTERM will return to the terminal mode.

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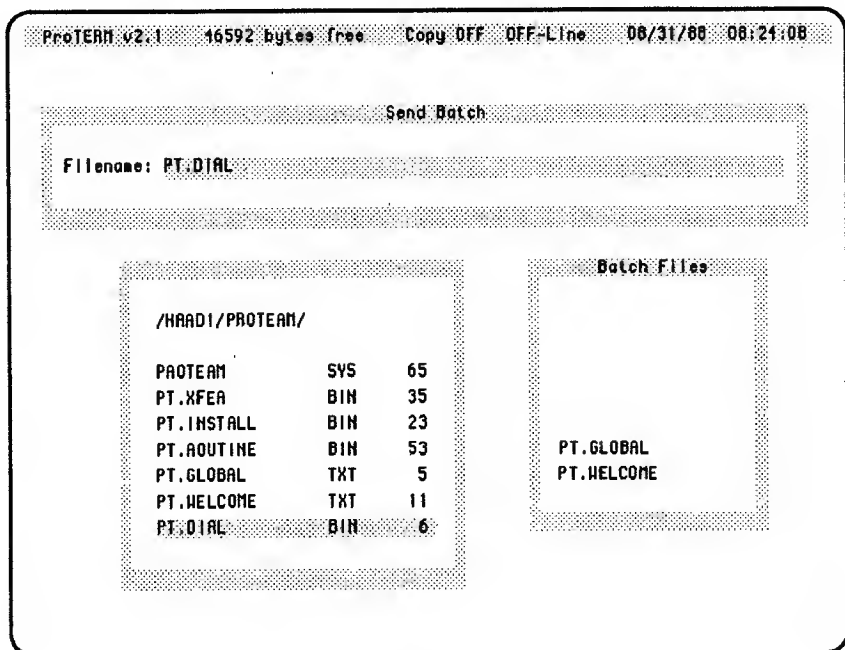


Figure 21

Sending Binary II

To send a batch of files using the Binary II encoding scheme, select the ⏏-[S] command. Set the "Mode" parameter to "Binary II" and use the file selection system to mark the files that are to be sent. If everything is correct, select "Transfer" to start sending the files.

Sending a Disk

ProTERM has the ability to send an entire 5.25" or 3.5" disk. The disk will be compressed into its essential data and sent in a "DDD" compatible format. This means that disks that are sent with ProTERM may be downloaded by users of other communications programs and converted back into a disk through the use of a "DDD" compatible program. Any type of disk may be sent including DOS 3.3, ProDOS, CP/M, Pascal, or any other unprotected format. If the remote host is another ProTERM, the data can be spooled back directly to disk. If the remote host is not a ProTERM, the disk will be saved as a standard file.

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Use the **Q-[S]** and select a protocol. Set the "Mode" parameter to "Disk" and select the volume to be sent. Make sure that the volume is on-line and ready to go. Disk transfers can take varying amounts of time depending on the amount of data on the disk, its compactability, and the speed of the transfer. Once the transfer is complete, ProTERM will return to terminal mode.

Receiving with a Protocol

The protocol that is used for receiving is dependent on the protocol that is being used to send. If it is available, "Zmodem" is the best protocol, followed by "Ymodem", then "Xmodem" and "Transit", and lastly, "Kermit." "Kermit" is normally only used when none of the other protocols are available. After selecting the receive protocol, several parameters must be set.

Receive Mode

There are four different methods for receiving data. The first mode is "File" which receives a single file. The second mode is "Batch" which receives one or more files in a single transfer session. The third mode is "Binary II" which receives one or more files in the Binary II encoding format. The last mode is "Disk" which will receive an entire 5.25" disk or 3.5" disk in a "DDD" compatible compressed format. These four modes may be selected by using the right or left arrow keys.

Most bulletin boards only support "File" mode. Some bulletin boards and terminal programs support "Batch" and/or "Binary II" mode. "Disk" mode can be used when receiving directly from another ProTERM, or later from a bulletin board or some other host where the ProTERM sender has left it in "File" mode.

Max Errors

Max errors sets the number of consecutive errors that may occur before the transfer is cancelled. By default, the maximum is set to 10. This does not affect the number of total errors that may occur during the transfer.

Default File Type

The default file type is only used in the "File" and "Batch" modes. Certain protocols such as "Xmodem Standard" do not send the special ProDOS information (including file type). ProTERM must be told what file type to make these files. There are many file types to choose from (beyond the scope of this manual); if you are not sure, leave it set on text (TXT).

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Receiving a File

To receive a file, use the **C-[R]** command and select the desired protocol. Next, set the "Mode" to "File." Either accept the defaults or set the remaining parameters as defined above. Use the standard file selection system to choose a name for the new file. If the file already exists, the duplicate file window will appear. Once the name has been entered, ProTERM will automatically receive the file. Once the file has been received, ProTERM will return to terminal mode.

Example: File Receive

The following example contains the exact sequence of events that would take place if you were to receive a file. In this example, the file "DATAFILE" will be sent from a bulletin board system and received with ProTERM.

```
.....
      EXfer: The Extended Transfer Module
              Version 4.0
.....

XT: Please enter the type of XMODEM you are using...

[1] DOS 3.3 Xmodem
[2] ProDOS Xmodem
[3] Standard Xmodem
[4] No Xmodem, ASCII only

XT: Which ? 2

You enter "2" to use ProDOS Xmodem.

001: Public Domain Files

#      Filename          Typ   I   Size
002 ACOS.PARKER          BIN   Y    3
003 ACOS.PARKER.SRC      TXT   Y   24
004 ALU                  BIN   N   16
005 ALU.DOC              TXT   N   23
006 DATAFILE            TXT   N   12

[::] ->Send: DATAFILE
```

You enter "S" at the prompt to send, then enter the filename.

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XT: [#6]: DATAFILE

XT: Estimated time of transfer is 0 minutes, 53 seconds

XT: Sending 47 blocks...

EXfer is now sending the file. You must press **␣-[R]** to tell ProTERM to receive. You would then select the "Xmodem ProDOS" method since that is the mode that EXfer was told to use. Leave the receive mode in "File" since only a single file is being sent. Just press [RETURN] and skip over the "Max Retries" and "Default File Type" fields. Use the file selection system and enter the name of the file as you would like it to be saved. While "DATAFILE" can be used as a name, any other name can be used as well. After the file name is specified, ProTERM will begin to receive the file.

Recapping these steps:

- 1) Press **␣-[R]**
- 2) Select "Xmodem ProDOS"
- 3) Set "Receive Mode" to "File"
- 4) Leave "Max Retries" at "10"
- 5) Leave "Default File Type" at "TXT"
- 6) Enter "DATAFILE" filename

Receiving Batch

To receive a batch of files, use the **␣-[R]** command. Select the protocol and set the "Mode" parameter to "Batch." ProTERM will request that you select a pathname onto which the files will be saved. Use the standard two window path selection to set the desired pathname. Enter [ESC] once the pathname is set. Since the filenames are sent from the remote host, it is possible for the names to be the same as existing names. In order to get around this problem, ProTERM can automatically rename the incoming files by appending a dot (.) to the end of the name. Once you decide whether to rename or overwrite, ProTERM will automatically receive all the files and then return to terminal mode.

Receiving Binary II

To receive a batch of files encoded with Binary II (BNY), select the **␣-[R]** command. Select the desired protocol and set the "Mode" parameter to "Binary II". As with Receive Batch, you will need to set the pathname to the directory where you want to receive the files and decide whether to rename or

Chapter 8: Sending And Receiving Files

overwrite existing files. You will also need to decide whether to allow subdirectory creation as necessary during the transfer.

The Binary II protocol specifies that more than one file may be included inside the transferring file; it further allows that some or all of the files may be (or may be required to be) within subdirectories. If the originator of the Binary II file included subdirectories, there may be a good reason, such as, the program may not run without its supporting files being in the properly named subdirectories. If you choose to allow subdirectories to be created on-the-fly, they will be created as necessary within the directory that you specified; otherwise, all files transferred will arrive at the same level and any subdirectory creation requests will be ignored.

Receiving a Disk

To receive a disk, first select the \mathcal{C} -[R] command to receive. Next, select the desired protocol. The "Mode" parameter must then be set to "Disk." Select the location (slot/drive) of the volume where the data is to be saved.

NOTE: All data on the disk in the selected drive will be erased! Once the parameters have been set, there will be several chances to cancel.

If the procedure is not canceled, ProTERM will format the disk and receive and write the incoming data to the disk, creating a duplicate of the disk that was sent. If the file being sent was not compressed with a "DDD" compatible program, ProTERM will cancel the transfer early with an error message. After the transfer is complete, ProTERM will return to terminal mode.

IX. Macros

Macros are one of the best features of any program. They allow the user to save time by combining several commands and executing them together. In communications, macros generally refer to a set of control instructions that are used to automatically log on to a remote system and/or perform certain operations on that system.

ProTERM has three distinct types of macros, each sharing the same macro command set, but each having different uses.

The first type of macros are the "System Macros" which are the set of eight macros that are assigned to each system in the dialing list. These macros are normally used for auto-logon, and for sequences specific to the system you are calling.

The second type of macros are "Global Macros" which are macros that are always resident while ProTERM is running. These macros can be setup so they use the Closed Apple (or Option) key in conjunction with a letter key to activate them. These macros are generally used to define functions which can be used with many of the different systems that you call.

The third type of macros are "Macro Files" which are text files stored on disk that can be as large as 32K. These macros can be used to perform complex tasks that require a great deal of commands.

All of these types of macros, with examples, as well as the macro language syntax will be presented in this chapter.

Compatibility Issues

ProTERM version 2.0 introduced "Procedure Macros". ProTERM version 2.1 significantly redefines the syntax and structure of macros. If you already have "Procedure Macro" files, version 2.1 will continue to allow them to function as before; however, you are strongly encouraged to convert them to the new "Macro Files", as future versions of ProTERM WILL NOT support the older "Procedure Macro" structure. Previously created System Macros such as system logon macros are not affected by this change.

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System Macros

System Macros are the set of eight macros which are associated with each system in the dialing list. To access these macros, the Ⓒ-1 through Ⓒ-8 commands are used. Example:

```
Ⓒ-1: sy /^m/ if 2,3 wt /login:/ go 2
Ⓒ-2: pr /gschaefer^m/ wt /password:/ pr /xyzzzy^m/
Ⓒ-3: pr /^m/ go 1
Ⓒ-4:
Ⓒ-5:
Ⓒ-6:
Ⓒ-7:
Ⓒ-8:
```

To edit a System Macro, select the Ⓒ-[M] command to enter the Macro Editor. Since each system has its own macro set, a specific system must be selected to edit. Use the arrow keys to highlight the system and press [RETURN]. Once the system has been selected, its list of macros will be displayed.

Use the Window Edit commands to enter or change the text of a System Macro line. The commands are:

<u>Press</u>	<u>Means</u>	<u>To Get</u>
[CTRL]-[B]	[BEGIN]	Move to beginning of line.
[CTRL]-[A]	{alternate}	Move to beginning of line.
[CTRL]-[D]	[DELETE]	Delete the character at the cursor.
[CTRL]-[F]	[INSERT]	Insert a space at the cursor.
[CTRL]-[E]	[END]	Move to the end of line.
[CTRL]-[S]	{alternate}	Move to the end of line.
[CTRL]-[R]	[RESTORE]	Restore line to original content (if [RETURN] has not been pressed yet).
[CTRL]-[X]	[CANCEL]	Erase entire line.
[CTRL]-[T]	[TRUNCATE]	Truncate line at cursor.
[CTRL]-[Y]	{alternate}	Truncate line at cursor.

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AUTOLEARN™

AUTOLEARN™ is a special ProTERM function that creates macros that automatically log you on to a remote system without entering user ID's, passwords, etc. The basic concept behind AUTOLEARN™ is simple: ProTERM watches a standard logon sequence with a remote system, then remembers what happened. ProTERM analyzes the logon session and makes note of the text you enter in response to prompts from the remote system. Then, ProTERM builds and saves that logon macro for future use. What's more, the macro is created using standard macro commands that can be modified later.

To create an AUTOLEARN™ Macro, go into the "Dial" window and select the system for which the macro is to be created. Once the system parameters appear, select "Edit" and tab down to the "Logon Macro" field. Set "Logon Macro" to "Learn". The next time the system is called, a macro will be created. Dial and connect with the system. When the connection has been made, the message "Learn Macros On:" will appear at the bottom of the screen. If this message does not appear, AUTOLEARN™ was not properly enabled.

At this point simply log onto the system as normal. For best results type slowly. If text is entered too quickly, certain systems may confuse ProTERM with their delayed echo. Once the logon procedure is complete, hold down the ⌘ key until the message "Please Wait" appears. At that time the macro will be created and saved to disk automatically in the PT.MACRO file. You may now use the system you have called. The next time you call this system, ProTERM will automatically log on for you.

Global Macros

Global Macros are a set of commands that are not restricted to just one system, but are accessible by you globally. The macros are executed by pressing the Closed Apple key plus a letter key at any time (except from within the editor).

If this macro set is saved in a file called "PT.GLOBAL" it will be read in every time ProTERM is run. It may, however, be named anything you like and you may have as many of these sets as you need. From the "Disk Commands" menu, command [A] "Read Globals" will allow you to load in another set of Global Macros (see also Chapter 5, "Disk Functions").

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The Global Macro file is a standard text file and may be created and edited in the ProTERM editor. Example:

```
#-Z * load in revised pt.global * do 'y <a> </proterm/pt.global> <x>' ex

#-D * redial current system three times *
di * monitor what is happening *
se $1=0 * clear a counter for redial count *
#@01
do .dial <> <dial>. * dial the current default system *
if $0,-- * terminate macro if we get online *
se $1+ * increment the counter *
if $1 #3, @01 * continue dialing until $1 = 3 *
ex * give up dialing *

#-U * quickly go to unattended, set password to xyzzy, use other defaults *
do "unattended <xyzzy> <> <> <> <> <> <> <>"
ex
```

Macro Files

Macro Files are free-form text files, similar to Global Macro files which generally contain one large, complete routine. There are also labels which can be used within the macro files to allow advanced sequences of commands to be used. Example:

```
##%01
di * monitor what is happening *

se $1=0 * reset redial counter *
##%02
do "dial <sys1> <dial>" * dial the current default system *
if $0,-- * terminate macro if we get connect *
se $1+ * increment the counter *
if $1#5, %02 * continue dialing until $1 = 5 *

se $1=0 * reset redial counter *
##%03
do "dial <sys2> <dial>" * dial the current default system *
if $0,-- * terminate macro if we get connect *
se $1+ * increment the counter *
if $1#5, %03 * continue dialing until $1 = 5 *
```


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se \$1=0	* reset redial counter *
#%04	
do "dial <sys3> <dial>"	* dial the current default system *
if \$0,--	* terminate macro if we get connect *
se \$1+	* increment the counter *
if \$1#5, %04	* continue dialing until \$1 = 5 *
go %01	* try dialing system 1 again *

The preceding Macro File would try calling three different systems, five times each in sequence until it connected with one of them. While not a real great application of the macro files, it illustrates how they can be used.

NOTE: A macro file must always begin with a label definition as the first item in the file, otherwise the file will be executed as an old style procedure file.

Executing Macros

How to execute or run or start a macro depends on the macro type. In addition to the following methods, any macro may link to any other macro.

A System Macro may be started simply by dialing a system; provided the "Logon Macro" function is "On". When the macro is executed in this manner, it will always start with line 1.

A System Macro may also be executed directly from the keyboard by typing a number 1 through 8 (or ⌘-1 through ⌘-8 if on line). This will start execution at the line number you enter. If you are on line, obviously, the System Macro set used will be the one that you used to connect with the current system. If you are off line, the set used will be the most recently edited set. For example, on GENie, you would probably have a logon macro to dial the system and enter your number and password. But that would not take more than 2 lines; leaving the other 6 lines empty. You could edit the command: DI 'm645;3' into your GENie system macro set at line 6, and after successfully logging on and perhaps reading mail, type ⌘-6 to be instantly transported to the A2 Libraries.

A Global Macro may be executed by pressing the Closed Apple key with its letter key.

A Macro File may be executed by using the ⌘-[F] command, "Exec a macro file", using the name of the Macro File on disk. A Macro File may also be

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automatically executed when ProTERM starts by placing the file in the PROTERM directory and naming it "PT.STARTUP".

There is a 'macro trace' mode that may be on when a macro is running. This trace mode will display the macro commands and elements as they occur on the bottom line of the screen. The stream of activity will scroll across the screen from right to left. You may use this as a progress check or 'debugging' tool to discover problems in your macro. This mode is triggered on by the commands: WT, SY, IF, and DI. For the protection of your system password while trace is on, the command PR will print its string masked with asterisks. If you would rather see the string, you may change the occurrences of PR to DI. When an AUTOLEARN™ macro is created, it will always use the command PR, as it has no way of knowing what it is printing.

Macro Syntax

All three types of macros use the same commands, tokens, and rules. The rules and commands will be explained in this section. Where something is specific to one type of macro, it will be noted. In this discussion, an optional element will be shown in square brackets ([]).

General Rules

Case is insensitive (except where noted); that is, upper and lower case letters are treated equally.

Control characters are indicated by their letter equivalent preceded by a carat ("^"). See Appendix H, "ASCII Charts", for these values.

Whenever the macros require a string, the string must be enclosed by delimiters. There are four valid delimiter characters; they are: single-quote ('), double-quote ("), period (.), and forward slash (/). Any text surrounded by any of these delimiters will be considered a string. Whatever delimiter is used to start the string, must be used to finish the string. Examples:

```
PR .hello.  wt /login:/  di "my name"  sy '^m'
```

Comments may be included in the macro to help the readability. A comment must begin and end with an asterisk ("*"). Everything between the asterisks is ignored by ProTERM.

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Spaces are not required at anytime in a macro; unless they are needed as a part of a string. In fact, any character with an ASCII value of a space or less, is ignored and may be used to separate macro elements (if desired). This will allow you to use tabs, carriage returns, or other control characters in the macro. The samples in this manual will have spaces between elements merely to make them easier to read.

System Macros are line oriented, and unless there is a link to another line, the macro will end at the end of a line. System Macro labels are simply the single digit numbers 1 through 8 corresponding with the eight lines.

Global Macros and Macro Files are free form; that is, they may look any way you like. They may be all run together on the same line, one statement on each line, or tabbed and indented. Blank lines are ignored and ends of lines have no meaning. These macros will continue to execute statements until they encounter the 'end of macro' token or a syntax error.

All Global Macro and Macro File labels must begin with a pound sign (#). Global Macro labels may be either a pound sign (#), followed by a minus sign (-), followed by the associated letter key (e.g. #-X), or they may be a pound sign (#), followed by an at sign (@), followed by a unique two digit number (01 through 80) (e.g. #@07). Macro File labels must be a pound sign (#), followed by a percent sign (%), followed by a unique two digit number (01 through 80) (e.g. #%63).

Commands

GO number	* link to a System Macro line number *
GO -key	* link to a Global Macro key definition *
GO @label	* link to a Global Macro label *
GO %label	* link to a Macro File label *

The four different formats represent where the macros should go next to continue execution. Absence of a special character (just a single digit number) tells the macro to jump to the beginning of the numbered line within the current System Macro. If the lead-in character is a minus sign (-), then the macro will perform the equivalent of typing ⌘-key. If the label is preceded by the @, then control will transfer to the statement at the label specified within the currently loaded Global Macro file. If the label is preceded by a the %, then the macro will jump to the statement at the label specified within the currently executing Macro File.

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WT [timeout] [[.] 'string'] [[.] \$variable] [[.] !xx:xx]

WT 5	* wait 5 seconds *
WT .HELLO.	* wait for the string "HELLO" *
WT 6, 'HELLO'	* wait for 6 seconds or "HELLO" *
WT /HELLO/, !02:45	* wait for "HELLO," or 2:45AM *

The WT (wait) command will cause the macros to wait for either a fixed number of seconds, a string to be received, a variable to take a value of true or non-zero, or a time to be reached. Any combination of strings, variables, and times may be used with the wait statement.

IF [timeout[,link],] [string[,link],] [\$variable[,link],] [!xx:xx[,link]]

IF 5,-H , "logon:",3 ,!23:50,0 , \$8,%04

This example will wait for the first of the conditions to occur. If the string 'logon:' is received, link to System Macro line 3. If the time is 11:50 pm, then execute the next macro command. If the variable \$8 is true, then link to the Macro File label %04. If none of the conditions are satisfied in 5 seconds, then link to the Global Macro 'H'.

The IF command is very similar to the WT command. The only difference is the optional links that can follow string, variable, or time checks.

The link, ",0" means that the macro should jump to the next command. This link is not required; in fact, when ProTERM can't find a link, it does the equivalent of a ",0" and resumes execution at the next command.

Conditions may be evaluated as either true (non-zero) or false (zero), equal (=), or not equal (#). The command IF with only a variable and a link will evaluate the variable and if it is true, the link will be taken; if it is false, the macro will continue. To compare two conditions, use the equal or not equal syntax. The entire expression (variable, operator, and reference) will be evaluated as either true or false. The item on the left side of the = or # sign must be a variable; either a system status variable or a numeric variable. The item on the right side of the = or # sign may be either a variable or an

Chapter 9: Macros

absolute number. In a recurring test, the variable on the left is re-evaluated every time, but the quantity on the right is evaluated only the first time. For example, "IF 60, \$M#\$M" would start a test that will be re-checked every second (until a maximum of 60 seconds); the minutes from the system clock are read for the left side of the expression, then they are read again for the right side. The first time this is tested, \$M will equal \$M, so the test will have to recur. As each second passes, the minutes value is re-read into \$M for the left side; but the initial value of \$M is remembered for the right side. The test will become true when the current minute is different from the minute in which the test started. The 60 seconds is merely a time long enough to guarantee that the minutes will change, and as long as a clock is present, will never be reached. The result of this macro command is to wait until the top of the next minute.

PR string

PR "my name^m"

The string 'my name' followed by a carriage return (control M) will be sent to the modem.

The PR (print) command will send the string to the modem. If the macro trace mode is on, then the sequence: PR "*****" will be displayed.

DI [string]

DI "my name^m"

The string 'my name' followed by a return will be sent to the modem. The macro trace mode will be forced on if it is not already. In addition, it will display DI "my name^m".

The DI (display) command is the same as the print command, except that it force the macro trace mode to be turned on if it is not already, and the string will not be displayed with asterisks (*) masking the data as with strings displayed by PR. The DI command may also be used without a string to simply force the macro trace mode on.

Chapter 9: Macros

EX

The EX (exit) command will terminate macro execution. The link reference of 2 minus signs (--) will also terminate the macro.

SY string

SY “^m”

This will send out a return every second until the remote system responds by sending out some sort of data.

The SY (sync) command will attempt to sync-up with a host that requires that some character be sent at intervals in order to detect the correct baud rate. The string will be send at one second intervals until there is some sort of response from the remote host.

BP number

The BP (beep) command will sound the ProTERM standard tone (same as that heard after a file transfer) the specified number of times. This can be used as a warning or alert signal.

OP string[,string]

OP W+,W-	Enable/Disable VT-100 character wrap at column 80
OP K+,K-	Set VT-100 to Keypad/Application mode
OP I+,I-	Enable/Disable display of inverse characters in VT-100

The OP (option) command allows certain special system parameters to be set. At this time, the only parameters that can be altered have to do with VT-100 emulation. This command is case sensitive and the letters W, K, and I must be in upper case.

Chapter 9: Macros

SE \$variable+
SE \$variable-
SE \$variable=number

SE \$4=12 * Set the counter \$4 to the value 12 *
SE \$4+ * Increment the counter \$4 by 1, from 12 to 13 *
SE \$r=15 * Set the continuous redial limit to 15 tries *
SE \$R- * Decrement the redial counter by 1 *

The SE (set) command will allow you to set or change the value of a variable. You may increment the variable by adding 1 to it, or decrement the variable by subtracting 1 from it. You may also set it to an absolute value from 0 through 99.

DO string

DO "receive <xmodem> <batch> <> <> </profile/stuff>"

This will force an Xmodem-Batch receive to take place in the directory /PROFILE/STUFF.

The DO command allows the macro to 'run' ProTERM. This is the command to use to open ProTERM's windows and choose the listed items.

The contents of the DO string must be enclosed by delimiters. The first item inside the string is the ProTERM Main Menu item function you want performed. You may spell out the whole name or just enter the first letter, but ProTERM only looks at the first letter. The letter must be the function's trigger key. For example, use 'Z' for Catalog and 'C' for Copy buffer.

Once a window is opened, choosing the menu item is done by enclosing it between a less than ("**<**") and a greater than ("**>**") sign. Enter what you would normally type from the keyboard; use "**<**" for [RETURN]. Where there are choices that you would normally use the arrow keys, you must enter the name of the item; you may use the full string, the first letter, or a partial string. If you use a partial string, the first match in the list will be used. To force a string to exactly match a list item, add an exclamation point (!) to the end of the string (e.g. <exact!>). When you are selecting files, you must include the complete name between the "<" and ">" characters.

Chapter 9: Macros

Variables

The macros also have several variables which can be accessed. There are two kinds of variables: built-in status variables, and general purpose numeric variables. These variables along with a description of their use follows. The variables are normally used with the set (SE) and if (IF) commands.

\$C	checks/sets state of copy buffer; zero=off, non-zero=on
\$O	checks/sets state of line status; zero=off line, non-zero=on line
\$R	checks/sets limit for auto-redial; zero=stop redialing, non-zero=redial
\$T	status of last file transfer; zero=good, non-zero=failed
\$F	status of last disk file operation; zero=good, non-zero=unsuccessful
\$D	status of copy buffer contents; zero=empty; non-zero=contains data
\$M	reads the minutes from the system clock
\$1 - \$9	numeric variables that may contain values 0 through 99

Any of these system variables (except \$T, \$F, \$D, and \$M which are read-only) may be incremented, decremented, or set to an absolute value. Values are whole decimal numbers from 0 through 99. The variables are set by the SE command and checked by the IF or WT command. You may force ProTERM online or turn on the copy buffer with "SE \$O+" or "SE \$C+", respectively. The command "SE \$O-" or "SE \$C-" may be used to set these modes to off.

Macro Command Summary

GO	Go to or link to another macro element
WT	Wait for a condition to occur; optional link
IF	If a condition exists, then link to another element
PR	Print a delimited string
DI	Display; optional string
EX	Exit or terminate the macro
SY	Synchronize using delimited character
BP	Beep a number of times
OP	Option (special for VT-100 only)
SE	Set or change the value of a variable
DO	Do the actions in a delimited string

X. Unattended Operation

ProTERM offers the capability of allowing others to call into your computer and exchange information with it. This is also termed “Unattended Operation” since the local operator (you) does not need to be present. Certain security precautions may also be used to limit access by the caller. It is also possible for two people, who are on a voice telephone call, to change over to a data call and exchange files (see topic in Appendix A).

Unattended Parameters

To either wait for a call or initiate an answer sequence, use the **ⓐ-[U]** command. The “Unattended Access” window will then be displayed. There are several parameters that may be set using the Window Edit commands:

Password

This is a password that callers must enter before being allowed access to the remote section. The length of the password must be at least 4 characters, but not exceed 8 characters. Passwords are not case sensitive; i.e., “HELLO” is the same as “hello.” Callers are given three chances to enter the correct password before they are disconnected. If this field is left blank, all callers are given access.

Welcome File

After the caller connects and has entered the correct password, a file may be optionally displayed. This file must reside in the Main Program Overlay Path; which is where ProTERM was started from. The default filename is “PT.WELCOME.” This file does not exist on your disk; you must create it if you wish to use this feature. The file should be a simple standard text file. You may easily create a file of this kind with ProTERM’s editor. You may view the file as your callers will see it by using the “Type disk file” from the main menu.

Chapter 10: Unattended Operation

Path

ProTERM will allow the caller to access up to four pathnames on your system. The caller may access any files or subdirectories that reside in any of the four pathnames. Specifying a pathname of "/" or simply not entering any pathnames will allow the caller access to all volumes and subdirectories on your system.

Receive Disk Volume

If you wish the caller to be able to send you a disk, you must select the slot/drive location to which you want the disk to be saved. If you don't want callers to be able to send you a disk, leave this parameter set to "(none)".

NOTE: If a caller sends you a disk, all existing data in the slot/drive will be destroyed. If more than one caller sends a disk, only the last disk will be saved.

Send Disk Volume

The "Send Disk Volume" may be set as to allow one of the drives on your system to be used as a source for sending a disk. If you do not wish callers to be able to receive a disk, leave this parameter set to "(none)". Otherwise select the slot/drive location of the disk to be sent.

Once all of the parameters have been set, ProTERM will either wait for a call, or go directly into unattended if a caller is already on-line.

Getting Into Unattended

Once your modem and the remote modem are connected, ProTERM will try to figure out what the baud rate should be. With certain cables, it may be necessary for the caller to press [RETURN] several times so that ProTERM can determine the speed at which they are sending.

After the speed has been determined, ProTERM will send the identification "ProTERM Unattended". If you set a password in the unattended parameters, ProTERM will send the request "Pwd:". The caller will have three chances to enter the password you specified, followed by a [RETURN]. If this password is entered correctly (or none was set), then ProTERM will display the optional "Welcome" file, and then display the prompt, "Cmd:", allowing the caller to start issuing commands.

Chapter 10: Unattended Operation

Unattended Commands

ProTERM has several commands that may be issued by callers. Commands can be entered by simply pressing the first letter corresponding to the command. The caller may press [CTRL]-[S] at any time to pause output and another key to restart it. During long operations, such as "Directory" and "View File," a [CTRL]-[C] will cancel the operation. The following is the list of legal unattended commands. Typing the letter in "quotes" will execute the command:

"?" Help

The question mark will give a list of commands.

S = Send, R = Receive
L = Log, D = Dir, C = Chat
V = View, H = Hang up

"H"ang Up

The hang up command will cause ProTERM to disconnect the caller and return to wait for another call.

"C"hat

When the caller presses the chat command, the bell will ring locally several times. To chat with a caller, press the "C" command. After you press the "C" command, you can type back and forth with the caller. Press [CTRL]-[C] to exit chat mode.

"L"og Prefix

The log command will allow the caller to set the current prefix. ProTERM will display the current pathname and either accept the new path entered or show the available paths. If a new path is typed in, it will be checked for legality. If the path is legal, the new prefix will be set and displayed; otherwise, the current path is re-displayed.

"D"irectory

The directory command will display all of the files on the current prefix. The directory can be aborted early by pressing [CTRL]-[C].

Chapter 10: Unattended Operation

“V”iew

View will allow any text file in the current directory to be displayed. Press [CTRL]-[C] to abort the viewing.

Unattended File Transfer

Perhaps one of the most difficult concepts to grasp when first starting to use the unattended operation is that the caller is in charge of both systems. In order to transfer a file (in either direction) the caller must first order the answering system to either send or receive, then instruct his own system to do the opposite. For example, your friend has a file that you want; your friend could put his system into unattended remote while you call him. After connection and password, you would need to enter the Send command to order his system to be the sender. After establishing the filename and the transfer protocol, you would tell your system to receive the file. Specifics on sending and receiving follow:

Send Procedures

“S”end

The send command will allow either single or multiple batch files, or a disk to be sent. After send is selected, the protocol must be specified. All of ProTERM's protocols are supported in unattended. After specifying the protocols and mode, the file name or names may then be entered.

The following example session is shown as if it were being seen by someone calling with ProTERM into a remote system running ProTERM in unattended mode. The caller will use the send command to get some files from the ProTERM host running in unattended mode. Remember, the caller is controlling both systems.

```
ProTERM Unattended
```

```
Pwd: .....
```

The caller must type in a pre-set password to get into unattended. Periods are echoed back so that the password is not actually displayed.

```
Cmd:D
```

The caller uses the “D” command to get a directory of the files that are available.

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Directory

Path = /FILES/

LETTER.RON	TXT	24
LETTER.JERRY	TXT	13
LETTER.KEITH	TXT	21
LETTER.MARK	TXT	13
LETTER.MIKE	TXT	17

Free = 185 blocks

Cmd:S

The caller uses the "S" command to tell the remote system to send some of the files.

Send

P)roDOS Xmodem, D)os Xmodem
X)modem, C)RC Xmodem, Y)modem
Z)modem, K)ermit, T)ransit

Select Protocol: Z

The caller enters "Z" so that Zmodem can be used.

F)ile, B)atch, 2)Binary II, D)isk

Send Mode: B

A "B" is entered so that a batch of files may be sent.

Enter name of files to be sent, one
per line, leaving last name blank:

*>LETTER.RON
*>LETTER.JERRY
*>

Two filenames are entered followed by an extra [RETURN].

ProTERM: Ready to Send...

The system that is in ProTERM unattended mode is now sending the file.

The caller must now press $\text{C}-[R]$ for his system to receive the files. He must next select "Zmodem" since that is the mode that is being used in the send. Since multiple files are being sent, the "Recv Mode" is set to "Batch." Both

Chapter 10: Unattended Operation

the "Max Errors" and "Default File Type" fields are left alone. The file selection system must be used to set a destination directory for the files. Once the proper directory is set, the word "<Select>" should be highlighted, and [RETURN] pressed. Set the "Duplicate Names" parameter to "Rename" in the next window.

Recapping these steps:

- 1) Press \odot -[R] to receive
- 2) Select "Zmodem"
- 3) Set "Recv Mode" to "Batch"
- 4) Leave "Max Errors" at "10"
- 5) Leave "Default File Type" at "TXT"
- 6) Select the destination directory
- 7) Set "Duplicate Names" to "Rename"

The two ProTERM's then go ahead and exchange the two selected files. After the transfer, the unattended ProTERM will wait for another command.

Receive Procedures

"R"eceive

The receive command will allow either single or multiple files or a disk to be received by a caller. After receive is selected, the protocol must be specified. All ProTERM protocols are supported in unattended. ProTERM then prompts for the filename to be received. To receive multiple batch files, leave this field blank by pressing [RETURN].

The following example session is shown as if it were being seen by someone calling with ProTERM into another ProTERM running in unattended. The caller will use the receive command to send some files from his machine to the remote system running ProTERM in unattended mode. This time the local system is sending files, so he must tell the remote system to "R"eceive.

Cmd:R

The caller uses the "R" command to prepare the remote system to receive the files that he will be sending.

Receive

P)roDOS Xmodem, D)os Xmodem
X)modem, C)RC Xmodem, Y)modem

Chapter 10: Unattended Operation

Z)modem, K)ermit, T)ransit

Select Protocol: Y

The caller enters "Y" so that Ymodem can be used.

Enter file name to receive, <CR> for
Batch, <2> for Binary II, <*> for Disk.

*>

Since the caller wants to use batch mode, just a [RETURN] is entered.

ProTERM: Ready to Receive...

The unattended ProTERM is now waiting to receive some files.

The caller must now press C-[S] to send the files. He would next select "Ymodem" since that is the protocol that is being used in the receive. Since multiple files are to be sent, the "Send Mode" is set to "Batch." The "Max Retries" field is not changed. The file selection system must be used to enter the names of the files to be sent. After all the names are entered, the [ESC] key is pressed. The caller now selects "Transfer" to send the files.

Recapping these steps:

- 1) Press C-[S] to send
- 2) Select "Ymodem"
- 3) Set "Send Mode" to "Batch"
- 4) Leave "Max Retries" at "10"
- 5) Select the files
- 6) Select "Transfer"

Sending and Receiving Disks

Transferring a complete disk (either 5.25" or 3.5") is just as easy as transferring a single file. You must still command one system to send and one to receive, choose a protocol, and set the number of errors allowed; the one difference is that you select the "Disk" mode.

If you want to allow a caller to receive a copy of one of your disks, you will need to assign the slot/drive location when you are setting the unattended parameters. Your caller may then command your system to send the disk and set his system to receive the disk.

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As a caller, you may wish to send a disk to an unattended system. If the unattended parameters were set to allow the receipt of a disk you will be allowed to do so. The disk in the unattended system's assigned slot/drive will be overwritten with the data that you send.

XI. Warranty And Service

The Warranty

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL WARRANTIES EXPRESSED OR IMPLIED. NEITHER CHECKMATE TECHNOLOGY, INC. NOR PROTECH SOFTWARE, INC. WARRANTS THAT THIS SOFTWARE PACKAGE IS MERCHANTABLE OR FIT FOR ANY PARTICULAR PURPOSE. NEITHER CHECKMATE TECHNOLOGY NOR PROTECH SOFTWARE SHALL BE HELD RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OR LOSSES, DIRECT OR INDIRECT, ARISING FROM THE USE OF THIS PRODUCT.

Every reasonable effort has been made to ensure that this software product functions properly and that this software will perform substantially as described in this manual. While we cannot and will not accept any liability for direct or indirect damages that you may believe this software has caused, we are always ready to provide advice and information to help you solve your problems.

CHECKMATE TECHNOLOGY, INC. warrants this software product against defects in media for a period of 90 days after purchase. During the warranty period, CHECKMATE TECHNOLOGY, INC. will, at its option, replace a defective disk at no charge or refund the purchase price to you, provided that the product is returned, shipping prepaid, to CHECKMATE TECHNOLOGY, INC.

Your sales receipt is your warranty validation. The receipt must be provided when requesting warranty work to be performed, unless a valid product registration card is on file at Company headquarters. This warranty does not apply if CHECKMATE TECHNOLOGY, INC., feels that the product has been damaged due to abuse, misuse, misapplication, accident or as a result of modification by the user.

This warranty applies to CHECKMATE TECHNOLOGY products purchased in the United States. The warranty may vary for products purchased outside the continental United States. Contact CHECKMATE TECHNOLOGY, INC. for warranty service information.

Chapter 11: Warranty And Service

Replacement Disks

If your disk becomes unusable in the first 90 days, please return the original disk to Checkmate Technology in Tempe, Arizona. It will be replaced free of charge. If the 90 day warranty is expired, you may have your damaged disk replaced for a total fee of \$13.00 (postpaid). You must return the damaged original disk, along with a check or money order for \$13.00 to Checkmate Technology. These prices are subject to change without notice.

Software Updates

From time to time Checkmate Technology may upgrade the features of ProTERM. Registered owners will be notified of updates through our newsletter or special mailings. All information on updates, including price and ordering information will be included in the mailing. Feel free to call us and find out what version of the software is currently available.

Checkmate's Service Policy

If you have questions about ProTERM, you may call our Technical Support number for help or information. You must return your warranty card to be eligible for free phone support.

The telephone number and hours for technical assistance are:

(602) 966-5802

Hours: Mon. to Fri., 9am to 3pm (Mountain Standard Time)

If you need to call us, please have the following information available:

- 1) Approximate date you mailed your warranty card.
- 2) Serial number located on the label of your original ProTERM disk.
- 3) Nature of the problem.

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Telephone Policy

We want to be as helpful as possible with your questions and problems. We understand that any problem you are having is important, and we will provide technical assistance to help remedy it. Collect technical support calls cannot be accepted.

How To Return A Disk

If it is necessary to return your ProTERM disk, follow these steps:

1. Put your disk in a disk mailer or an envelope with stiff cardboard to prevent further damage.
2. Include a note with your name, address, home telephone number, a daytime telephone number, plus a description of the problem.
3. Ship the disk, postage pre-paid, to:

CHECKMATE TECHNOLOGY, INC.
511 South Rockford Drive
Tempe, Az. 85281-3021

Attn: Customer Service

Suggestions

If you have suggestions, comments, or questions regarding a Checkmate product, please let us know.

Our goal is a satisfied customer!

Appendix A

Technical Information

Using RAM Cards With ProTERM

As expanded memory cards become commonplace, more and more programs are written to take advantage of the power provided by this type of hardware. ProTERM is one of the first programs designed to make full use of expanded memory cards. We strongly recommend adding a memory card with a minimum of 256K memory.

ProTERM supports expanded memory cards using the auxiliary slot protocol. These include the MultiRam series made for the Apple //e and Apple //c computers by Checkmate Technology, and similar cards by others. ProTERM also supports all Memory Expansion Slot cards for the IIGS. Memory cards that are not supported (except as a RAM disk) include Apple's //e and //c Memory Expansion Cards and AE's RamFactor.

Generally, there are two types of support for expanded memory on Apple machines: internal support, where the memory is used as an integral part of the program itself, and external support, where the memory is supported in the form of a solid-state RAM disk drive. ProTERM supports both types of memory use.

External Memory Use - RAM Disks

Now that expanded memory cards with capacity into the Megabytes are available with a battery backup feature, it is feasible to maintain large RAM disks indefinitely. Computer users are discovering the speed and convenience of RAM diskking.

RAM disks are simply disk drives (or disk volumes) that are set up in RAM on an expanded memory card. ProDOS recognizes a RAM disk volume just as it does a floppy disk or hard disk. Programs and data can be stored on and read from a RAM disk drive, just as they are from more typical media. The only problem with RAM disks is that they are volatile; the information stored on them is lost when the power is turned off. Currently, there are three

Appendix A: Technical Information

systems for holding information permanently in a RAM disk using a battery backup feature that preserves power when system power is removed. One is the MultiRam Plus card, manufactured by Checkmate Technology. The MultiRam Plus offers up to 4 megabytes capacity in an "Aux slot" type format for the //e. Another system is RamFactor, manufactured by Applied Engineering. The RamFactor offers up to one megabyte capacity in a back slot type format. For the IIGS, there is the MemorySaver by Checkmate Technology. The MemorySaver offers the capability making a ROM disk out of your existing memory, with a capacity up to 8 megabytes. The MemorySaver may use practically any two memory cards available for the IIGS, at the same time!

In order to operate, most RAM disks must be "installed" with special drivers. Both Checkmate and Applied Engineering provide methods in which the RAM disk drivers can be configured to use all or part of the memory available on the expanded memory card. When a large amount (greater than 256K) of memory is available, it is customary to use part for a high-speed RAM disk and part for expanded program space. The process of apportioning the memory is called "segmenting." After segmenting memory, the RAM disk "lives" and works in its own space, while programs are free to operate in the unused portion. ProTERM is designed to find, then ignore any memory allocated to a RAM disk.

The normal procedure in using RAM disk software is to install the RAM disk drivers just after ProDOS is booted and just before ProTERM is run. Please consult your RAM card users manual for details on setting up your software. ProTERM operates perfectly from within a RAM disk.

It is often useful to specify a RAM disk as the destination when downloading large quantities of material from a remote system. The rapid access times of a RAM disk help minimize the time spent writing material out of the copy buffer. Also, the large capacity of the SCROLLBACK buffer is ideally suited to use with a large RAM drive. Text can be saved in huge chunks from SCROLLBACK to a RAM disk, or a huge SCROLLBACK can be directly saved to disk.

Note: ProDOS enthusiasts are aware of the small RAM disk called "iRAM" created by ProDOS in an Apple IIc or Apple IIe with extended 80 column card in place. This RAM disk is not supported by ProTERM; instead, it becomes part of the increased SCROLLBACK and copy buffers. A minimum of 128K of added memory is required to use a RAM disk.

Appendix A: Technical Information

Internal Memory Use - Program Space

When ProTERM is booted, one of its first tasks is to take an inventory of all available memory. As noted above, it politely ignores all memory previously allocated to a RAM disk.

WARNING: *If a RAM disk has been created, but not properly installed, ProTERM will not be able to tell that the RAM disk is present, and will destroy all data on the RAM disk. When using a RAM disk, it is critical to reinstall the RAM disk prior to running ProTERM. Consult the user manual for your RAM card for details.*

When ProTERM has determined how much free memory is available for its use, it initializes the memory and displays the size of the SCROLLBACK and copy buffers on the initialization screen. ProTERM supports a maximum of 2.5 megabytes of expanded memory for its internal use.

The Modem Port on the Apple IIGS

When using ProTERM on the IIGS, you may use an internal modem in the slot of your choice. Or you may use an external modem with a serial card. In both of these cases, you would go to the control panel and set the slot you are using to "Your Card."

If you are using an external modem and the built-in serial port of the IIGS, you will NOT need to do anything special on the control panel. None of the settings on the "Modem Port" are used; and therefore need not be set. You may have Slot 2 set to either "Modem Port" or "Your Card." In fact, you may even install some other card in Slot 2 without bothering ProTERM.

Using the Modem Init String

ProTERM maintains an "Init String" for use with external modems. Since many modems have slight differences between them, the "Init String" is sent to the modem to set up special parameters. The "Init String" characters can be edited by the user. This string is most commonly used to set the "X" (extended command set) on most modems. Since certain modems offer busy detect under special "X" modes, that specific command is sent in the init string.

Appendix A: Technical Information

Using ProTERM Without a Modem

Without a modem? Yes, ProTERM can be operated without a modem. One possible application is direct transfer of files via RS-232 serial connections using the “Null Modem Driver.”

The “Null Modem Driver” is an driver that will allow ProTERM to talk to any device connected to a serial port. When ProTERM is configured for the “Null Modem Driver” and is run, the “Unable to Init” message will initially be displayed. Select the “Online” option, and ProTERM will go into terminal mode. Since ProTERM doesn’t know anything about the device connected to the serial port, the dial function is disabled. When in terminal mode, anything typed will be sent to the device, and anything received from the device will be displayed.

Another use for the “Null Modem Driver” is to connect two side-by-side computers for a demonstration of ProTERM or BBS software.

ProTERM Toggle On Line

From the Main Menu, you may press **⌘-[CTRL]-[T]** to toggle ProTERM online or offline.

This feature will allow you to go online to communicate with your modem without using the “Null Modem Driver”. It is also possible to go online without a modem. Or you may go offline without breaking the connection. Each time you press **⌘-[CTRL]-[T]**, your online state will be reversed.

Going From Voice to Data Transfer

How many times have you been talking to a friend and decided that you wanted to send him a file or program to discuss? Typically, you’d have to hang up, set up your respective systems, then wait for the phone to ring. ProTERM offers the capability of entering directly into data transmission without hanging up the phone.

If you are talking to another person over the phone and wish to go into data mode, have the other person begin their dialing sequence. That person will need to tell their end to dial, but does not need to enter a phone number. If the other user is running ProTERM, have them go into “Dial,” select quick-dial, and enter “*” for the phone number. This will cause ProTERM to pick up the phone, wait for 2 seconds, and try to make a connection.

Appendix A: Technical Information

Once the other person has their communications program to a point at which they are a key-press away from trying to establish a connection, you should have ProTERM in unattended remote (awaiting a call) and then press the [SPACEBAR]. This will cause your modem to go on-line and send out its "answer tone." Once you hear your modem send its tone, hang up your phone receiver. When the other person hears your modem's answer tone begin, they should press whatever key is needed for their end to try and connect. Once their modem picks up the phone, they should hang up their phone receiver.

Advanced Dialing

If you select the "Dial" option from the system parameters list, and no connection is established within the time limit set by the "Carrier Delay" parameter, the "Unable to Connect" window will replace the "Dialing" window. Specify a single re-dial attempt by simply entering a [RETURN]. If you want to continue trying the remote system until a connection is established, move the cursor to "Continuous" with the arrow key and enter a [RETURN]. The computer will dial the remote system's number and wait for the time specified in "carrier delay" to establish a connection; if no connection is established, the cycle starts over. Re-dialing will continue until you enter an [ESC]. You may also select a "Continuous" dialing option directly from the system parameters. If you select "Continuous," ProTERM will dial until a connection is established or until you press [ESC].

Some modems support "Busy Detect." That is, they can determine when the phone number they are calling is busy and respond with a signal. If your modem returns a busy status to ProTERM, ProTERM will immediately cancel the dialing attempt. If ProTERM is continuously dialing, it will then call the system again. If your modem does not support "Busy Detect" and you are attempting to dial a busy system, there are several things that you can do in order to increase your odds of making a connection. The first is to adjust the "Carrier Delay" so that it is tailored to the remote system. For example, the default carrier delay is 30 seconds. While this is good for general use, it tends to be too slow when auto-dialing a busy system. The best thing to do is to call the system and see how long an average connection takes. With experimentation you might find that a certain system takes approximately 11 seconds to connect. You would round up to the nearest five second interval and set the carrier delay to 15 seconds.

Dialing Long Phone Numbers

On very rare occasions you may find that the dialing string needed for a remote system exceeds the 27 character limitation posed by ProTERM. This might happen if you use many meta-characters or if you are dialing a phone number with several access codes. Following these instructions will allow you to use a dialing string up to 64 characters long at the expense of one of your macro strings. The procedure simply links the system phone number field with one of the 8 macro strings allocated for that particular system.

Before using this method, see if you can shorten your dialing string by removing unneeded meta-characters. If you can't shorten the string to 27 characters or less, then:

From the "Dial A System" (C-[D]), select "Enter New System". Type whatever name you want, then in the "Phone Number," then enter the letter "L" followed by the number "8". This number is the number of a macro string for this system, which you will enter shortly.

Important - Do not enter any other characters in the "Phone Number" string when using the macro link feature.

To link to the proper macro, you must enter ONLY "L8". You may use any number from 1 to 8, but it is best to pick 8, since this macro is rarely used in any AUTOLEARN macro.

After completing the entry of other system parameters, exit "Dial A System" and enter the macro editor with C-[M]. The number you entered after the "L" should correspond to an empty macro (number 8 in our example above). Proceed by entering the long phone number as the macro string. All meta-characters and other characters that are legal in a system phone number may be included. See Chapter 9, "Macros", for more information on using macros.

Important - Do not put anything into this special macro other than the long system phone number. You MAY NOT link this macro to another macro to get a longer phone number string.

Many modems do not support dialing strings longer than approximately 40 characters, so this feature may or may not work on your hardware.

Appendix A: Technical Information

Linked Dialing Lists

Your dialing list will allow a maximum of 28 entries. If you need more, you may create more lists, and link them together for a virtually unlimited number of entries!

Each additional list is “dialed” from the previous list, so, at least one of the entries in the current list must be used as a link to the other list. After the other list becomes the new list, you will need a way to return to the first list; therefore, each list needs at least one entry dedicated to linking to another list. A list may have more than one link to other lists; in fact, you could structure the main or first list to be nothing more than a menu of other lists.

These lists are kept on disk (in the main PROTERM file directory) and the main list is named PT.DIAL. Other lists may be named anything, but for the sake of this explanation, they will be named PT.DIAL.2, PT.DIAL.3, etc.

To create a second list, make an entry in the main list with a special phone number. The list entry name may be anything you prefer; i.e., “My Second List”. The phone number should be “\$PT.DIAL.2”, or whatever file name you have chosen; but, the first character must be “\$”. All of the remaining parameters are ignored. When you finish making this entry it will be saved in your PT.DIAL file as usual.

To make entries in this second list (or actually use it), you simply “dial” the entry “My Second List”. ProTERM will see the “\$” and load the file named in the phone number spot and display the new list. If no entries exist (the first time), the list will be created using the file name specified and appear with no entries. Add entries to this list in the same manner as you would for the main list. Set one of the entries in this second list to the name “Back to the Main List” (or something similar), with a phone number of “\$PT.DIAL”; this will allow you to return to the previous list. Cataloging the PROTERM directory at this time would reveal the addition of the file PT.DIAL.2 (or whatever name you used).

Call Waiting

To disable call waiting for a single call, just insert ‘1170*’ at the start of your phone number. This will disable call waiting during this one phone call. It will be reinstated after the completion of the call. This will work for both tone and pulse dialing phone lines.

Appendix B

Common Cable Pinouts

There are many different pinouts for cables that can be used to connect a computer to a modem. The following are some common cables that can be made, that will allow most modems to work. If you do not want to make up a cable yourself, you can supply the pinouts to someone else to produce the cable for you.

NOTE: Neither Checkmate Technology nor ProTech Software guarantee the accuracy of this information and may not be held responsible for damage resulting from the use of this information.

Signal Definitions

TD Transmit Data
RD Receive Data
RTS Ready to Send
CTS Clear to Send
DSR Data Set Ready
GND Signal Ground
DCD Data Carrier Detect
DTR Data Terminal Ready

1. From: db-25 (25 pin) serial port connector
To: db-25 (25 pin) modem connector
Use: Very Standard Modem Cable.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
2	2	TD
3	3	RD
4	4	RTS
5	5	CTS
6	6	DSR
7	7	GND
8	8	DCD
20	20	DTR

Appendix B: Common Cable Pinouts

- 2 . From: db-25 (25 pin) serial port connector
 To: db-25 (25 pin) modem connector
 Use: Null Modem Cable (talks to anything).

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
2	2	TD
3	3	RD
4 to pin 5 of computer		RTS
5 to pin 4 of computer		CTS
7	7	GND
8 to pin 20 of computer		DCD
20	20	DTR

* In this cable, pin 8 (carrier detect) is tied to pin 20 of both the computer and modem. Normally pin 20 is connected first, and pin 8 is then shorted to pin 20.

- 3 . From: db-25 (25 pin) serial port connector
 To: db-9 (9 pin) Apple modem 300/1200
 Use: General hookup of Apple modem 300/1200.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
2	9	TD
3	5	RD
4 to pin 5 of the computer		RTS
5 to pin 4 of the computer		CTS
6	2	DSR
7	3	GND
8	7	DCD
20	6	DTR

Appendix B: Common Cable Pinouts

4. From: din-5 (circular 5 pin) Apple //c serial
To: db-25 (25 pin) modem connector
Use: Apple //c to a standard modem.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
4	2	TD
5	3	RD
2	7	GND
3	8	DCD
1	20	DTR

* The computer pin assignments are numbered using the "DIN Standard". This is NOT the same as the Apple numbering scheme. The DIN numbers will be marked on the plastic connector.

5. From: din-5 (circular 5 pin) Apple //c serial
To: db-9 (9 pin) Apple modem 300/1200
Use: Apple //c to an Apple modem 300/1200.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
4	9	TD
5	5	RD
2	3	GND
3	7	DCD
1	6	DTR

* The computer pin assignments are numbered using the "DIN Standard" scheme. This is NOT the same as Apple numbers the pins on an Apple //c. These are the pin numbers that are actually found on "din-5" connectors.

Appendix B: Common Cable Pinouts

- 6 . From: mini-8 (circular 8 pin) IIGS or //c Plus serial port
 To: db-25 (25 pin) standard modem connector
 Use: Apple IIGS or //c Plus to a standard modem.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
3	2	TD
5	3	RD
4	7	GND
8 to computer pin 4		GND
2	8	DCD
1	20	DTR

* Pin 8 of the computer must be grounded by either tying it to pin 4 of the computer, or pin 7 of the modem.

- 7 . From: mini-8 (circular 8 pin) IIGS or //c Plus serial port
 To: db-9 (9 pin) Apple modem 300/1200
 Use: Apple IIGS or //c Plus to an Apple modem 300/1200.

<u>Computer Pin</u>	<u>Modem Pin</u>	<u>Signal</u>
3	9	TD
5	5	RD
4	3	GND
8 to computer pin 4		GND
2	7	DCD
1	6	DTR

* Pin 8 of the computer must be grounded by either tying it to pin 4 of the computer, or pin 7 of the modem.

Appendix C

Troubleshooting

While ProTERM was designed to be as trouble-free as possible, sometimes you may encounter a problem that leaves you baffled. We have provided a list of potential problems and possible solutions. Remember that Checkmate's Technical Support Department is available if you really get stuck.

Problem:

ProTERM locks up at the "Initializing System Modem" message.

Possible Cause:

Cable not firmly attached to computer and modem.
ProTERM incorrectly configured. Delete the file "PT.BIOS" from the ProTERM disk, and run ProTERM again. You will then be able to re-configure.

Problem:

ProTERM displays "unable to initialize modem" message.

Possible Cause:

Incorrect modem selection during installation. Modem may not be 100% Hayes compatible. Consult modem manual or modem manufacturer.
External modem cable may be faulty or incorrect.

Problem:

Unable to connect with a system.

Possible Cause:

The carrier delay may be set too short. Increase the time by 10 seconds, call again, and see if connection is correct for the system.

Appendix C: Troubleshooting

Problem:

Data that is received is missing characters.

Possible Cause:

Most serial cards support interrupts but have a switch to enable and disable the feature. Make sure that your serial card is set so that it allows interrupts.

Problem:

Lots of garbage (extraneous characters) being received or sent.

Possible Cause:

Most probably this is due either to the quality of the phone lines or to a “mismatch” between the two modems that are in use. Make sure the baud rate is correct. If line quality is a problem, talk with other users in the area or consult your phone company.

Problem:

Modem takes a significant time to hang up.

Possible Cause:

ProTERM is sending out a “+++” sequence to an external modem. As a result, the hang up sequence is fairly slow. To speed things up, check for dip-switches on your modem. If present, set “DTR Override” to “Off”. The hang up process will be considerably faster.

Problem:

ProTERM locks up after a printer option is selected.

Possible Cause:

ProTERM is having problems sending data to your printer. Make sure the cable is firmly in place. Also make sure that there is paper in the printer, and the printer does not have an “error light” on. Try turning your printer off and on line. Also try powering your printer off and back on again.

Problem:

Printer does not scroll at the end of a line.

Possible Cause:

Your printer needs to be set to add linefeeds or “Generic Printer Driver w/LF” should be selected. You may also wish to check your printer interface card manual in reference to line feeds.

Appendix D

Protocols & Error Messages

Protocol History

What is a protocol? A protocol, in computer terms, is a pre-defined method of executing a task. In communications, a protocol normally refers to a pre-defined method for sending or receiving data to or from a remote host. Now we begin a short discussion of protocols, along with a brief history of their development. If the theory and history of protocols doesn't interest you, save it for later and skip down to "Sending With a Protocol".

A very simple example of a communications protocol could be:

- 1) Send a line of text.
- 2) Follow the line with a return character.
- 3) Wait for a ">" character and repeat step 1.
- 4) Send the string "DONE" once the entire file has been sent.

While this protocol may not be very advanced, it is still a protocol. As long as both sides understand and abide by the pre-defined set of rules, the file will be transferred correctly. Both sides will know what the other side expects to happen for any condition. The biggest problem with the above protocol is that any interference on the phone line can introduce garbage into the file being sent or cause a prompt to get lost. The answer to this problem lies in "error-free" protocols.

An error-free protocol is one in which some form of "error checking" is employed to make sure that the file is sent and received without errors. If an error is detected, the receiver requests that the sender re-send the data in question. While it may take several tries to send a chunk of data, when the file is finally saved by the receiver it should contain no errors.

ProTERM supports four different error-free protocols along with many of their derivative protocols. The following outlines the development of these protocols along with their contributions to telecommunications.

Appendix D: Protocols & Error Messages

The most popular of the error-free protocols is “Xmodem.” Xmodem was developed in 1977 by Ward Christensen and was designed to run under CP/M, the most popular operating system of the day. The guidelines behind this protocol are very simple:

- 1) The protocol was designed to run strictly with asynchronous 8-bit serial ports.
- 2) Data is sent in 128 byte packets.
- 3) Each data packet is prefixed by a 2 byte packet number.
- 4) Each data packet is followed by a 1 byte checksum.
- 5) All controls between the sender and receiver are handled by simple 1 byte control characters.
- 6) The protocol is receiver driven.
- 7) There is a simple timing scheme which keeps the two ends from ending up in a stalemate.

As a result of its early introduction, ease of implementation, and good performance, Xmodem has become the most widely used and accepted protocol in personal computers today. In Xmodem’s original generic form, it is referenced by ProTERM as “Xmodem Checksum.”

While people were temporarily dazzled by the ability to transfer files and data with their friends, they soon found that sending only one file at a time without operator intervention was very annoying. As a result, an extension to Xmodem was introduced and was aptly named “Xmodem Batch”.

While Xmodem Batch used the standard Xmodem protocol for the actual file transfer, some additions were made to allow the filename to be sent along with the file. Because the filename was sent, the receiver no longer needed the operator to keep entering filenames. The only real problem with Xmodem Batch was that the implementation was not really clean and simple as Xmodem itself was. This fact would later be partial inspiration for a new protocol.

The error checking done in the original Xmodem used what is termed a “1 byte checksum.” This means that all the data in a packet (128 bytes) are added together and the lowest 8 bits of the result are used as the checksum. While this method will catch the majority of errors, it does have some potential for error.

To combat the problem of the 1 byte checksum, “Xmodem CRC” and “Xmodem CRC Batch” were introduced. This derivative of Xmodem allowed the use of a 2 byte CRC (cyclic redundancy check). The accuracy of a CRC is based around the fact that if any integer is divided by a prime number of the same or greater length, the remainder is unique for all integers of the same

Appendix D: Protocols & Error Messages

length. In Xmodem CRC, the generator polynomial used is $X^{16}+X^{12}+X^5+1$. The key is that, in effect, the CRC will catch all errors.

Apple DOS 3.3 and Apple ProDOS both contain special file information that is not actually part of the file. Both DOS 3.3 and ProDOS files have file type and locked/unlocked status that are not part of the file. In addition, Apple ProDOS has several other parameters, such as exact file length, which are not a part of the file. Unlike DOS 3.3 and ProDOS, CP/M files do not have any of these special bytes. CP/M file types are determined by the filenames. As a result, no provisions were ever made within Xmodem to transfer this "machine specific" information.

When ASCII Express "The Professional" for DOS 3.3 was released by Southwestern Data Systems, it was the first Apple communications program with the ability to send files using Xmodem but still retain the proper file type. To accomplish this, the authors of ASCII Express added another extension to Xmodem to accommodate the file type. This extension to Xmodem is now commonly called "Xmodem DOS".

Later, when the ProDOS version of ASCII Express was released, the same problem was faced again. To allow the extra parameters of ProDOS to be sent, a second extension to Xmodem was developed. This new extension for ProDOS files was termed "Xmodem ProDOS".

With all the extensions and modifications to Xmodem, things were starting to become a little messy. Each derivative of Xmodem was somewhat obligated to support the older derivatives. Fortunately, Chuck Forsberg designed "Ymodem" which was based on the ideas and methods of Xmodem, but cleaned up the implementation of batch mode and added some nice new features. The main improvements of Ymodem are that the protocol uses a standard data packet to send the filename along with any needed machine specific information, it always uses CRC error checking, and due to its new name, it is not obligated to support Xmodem and its derivatives. This last fact was actually very important considering the number of Xmodem derivatives that had accumulated by this point. Ymodem can also support an optional 1K packet along with the 128 byte packet which tends to make Ymodem faster than Xmodem.

While Xmodem and Ymodem were both running well with micro-computers, they both had the requirement of using an asynchronous 8-bit communications path. In the meantime, communications had also been somewhat of a problem for users of mini and mainframe systems which commonly use 7-bit communications environments along with having special timing needs. Frank da Cruz and Bill Catchings of Columbia University came to the rescue with a new protocol and named it "Kermit".

Appendix D: Protocols & Error Messages

Kermit's design philosophy was radically different from that of Xmodem and Ymodem. Kermit was specifically designed for character-oriented communications links, taking into account the requirements of diverse operating environments including: buffering, duplex, parity, character set, etc. Kermit sends everything in packets, including the control sequences for the remote system, unlike Xmodem's single control characters. Kermit normally uses 96 of the 256 characters of the ASCII character set. Control character and high-bit characters are sent using a special "prefixing" method. While Kermit tends to be much slower than Xmodem, it can communicate through almost any environment. As with Xmodem, Kermit has no provisions for sending machine specified information such as file type. As a result, Kermit is normally only used for text file transfer.

With the development of packet switched networks and the use of services such as PC Pursuit, protocols of the older generation have begun to experience a problem with delay. To circumvent this problem, a new protocol named Transit was developed expressly for packet switch networks. Transit is a windowed protocol that overcomes the normal delays inherent in these networks. Transit uses an intermediate block size of 256 bytes and operates in an 8-bit communications environment.

Zmodem was also designed to meet the need of the micro user in the packet switched world of networks such as PC Pursuit, and to facilitate file transfer with larger host machines which are more prone to data propagation delays. Zmodem is termed a 'full streaming protocol' because the sending and receiving ends of the protocol are not synchronized with each other. In order to defeat network delays, the Zmodem sender will start sending blocks of data without waiting for an acknowledgement from the receiver after each block is sent. This eliminates the problem of network propagation delays that is common with Xmodem and Ymodem. The receiver will in turn send acknowledgments to blocks as it gets them, or when it is requested to. The key is that when the receiver gets an invalid block, it will prompt the sender to begin sending again at the point where the bad block was detected. There will always be some data 'in the pipeline' which will be lost as a result, but this is not serious. The equivalent amount of time using Xmodem or Ymodem would just be idle time that the protocol would be waiting for a response anyway.

Choosing a Protocol

With all the power that ProTERM has you may be left wondering what all the protocols in ProTERM really are, and what the mode modifier does. This should hopefully make things a little clearer.

Appendix D: Protocols & Error Messages

Xmodem Receive - This is just a simple Xmodem Receive routine, however, it can transparently handle both 128 and 1024 byte packets. It will not request that 1024 packets be used.

Xmodem ProDOS Receive - This is similar to Xmodem Receive except that it also waits for a special header at the start of a file, and will wait for a special packet that terminates the file, containing the ProDOS file information. It will also handle both block sizes.

Xmodem DOS Receive - This routine will handle both block sizes, and also handles the special header at the start of the file which specifies the DOS 3.3 filetype.

Xmodem CRC - This routine will use the "C" startup character to prompt the sender to use CRC checking on the packets. It also handles both sized blocks.

Ymodem - There is only a single version of Ymodem. It alternates between using "C" and "K" to start the sender, and can handle both size blocks.

Zmodem - There is only a single version of Zmodem. It is unique unto itself, and so far, there are no modified versions around.

Kermit - Most implementations of Kermit are quite good and all reasonably follow the specifications.

Transit - ProTERM offers the only implementation.

File and Batch Modes

Xmodem was designed as a FILE mode protocol. It did not have provisions for BATCH mode. It simply sends the file with no name header or anything else.

There is also BATCH mode Xmodem which was developed for CP/M systems. However, this Xmodem Batch is not even similar to Ymodem Batch. It strictly sends filenames, in a simple character by character format. ProTERM supports Xmodem Batch in its true form, and therefore, it is not compatible with Ymodem.

The other protocols, Ymodem, Zmodem, Kermit, and Transit DO NOT HAVE FILE MODES. They are BATCH ONLY! When ProTERM sends in

Appendix D: Protocols & Error Messages

Ymodem File mode, it is really sending a BATCH OF 1 FILE. When ProTERM receives in Ymodem File mode, it is really receiving the FIRST FILE OF A BATCH, using the local user entered filename, and keeping any ProDOS file information. Any files after the first will be canceled.

Other communications programs have somewhat confused the issue by offering a "Ymodem File" mode which is actually "Xmodem-1K". In order to receive a file from a BBS that uses "Ymodem File", you must select ProTERM's Xmodem ProDOS (either File or Batch). This is because the file will be sent using 1024 byte blocks in Xmodem and ProTERM automatically resets itself from 128 byte packets to 1024 byte packets as necessary.

If the system you are calling offers several protocols, the best all-around choice is Zmodem. The next best choice would be Ymodem.

Error Messages

The following is a "guideline" description of the ProTERM protocol error messages. It must be kept in mind that, in many cases, there is more than one cause for an error message. This guide is designed simply to give a general idea as to the status of a transfer.

STARTUP TIMEOUT:

When a protocol is first initiated, the sending and receiving ends need to get synchronized with each other. The decision as to which end will try to first contact the other side is determined by the protocol being used. If the end waiting for contact gets none within the prescribed time, as set by the protocol, a startup timeout is generated.

NAME TIMEOUT:

When a batch mode protocol is being used, a filename must be sent along with the file data. This name is normally encoded into some sort of packet as is data. If the receiver is expecting this name and it does not arrive, a name timeout will be generated.

NAME FAILURE:

A name failure error will be generated if a file name is received properly (from a protocol point of view), but the name itself is garbled. This can happen when transferring files from a non-standard host.

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HEADER TIMEOUT:

This error normally occurs when the receiver is waiting for a packet to be sent, and the time limit for such an action (as dependent on the protocol being used) is exceeded.

HEADER MISMATCH:

This error will occur when the receiver gets a packet that is not initiated in the proper way. For example, Xmodem/Ymodem packets start with a SOH (start of header) character. If some other character comes in when the SOH is expected, a header mismatch error will be generated.

BLOCK TIMEOUT:

Most protocol packets are normally made up of five parts: The header, block number (packet number), block number complement, data, and error checking (checksum/CRC). If the block number is not received within the prescribed time frame, a block timeout is generated.

BLOCK MISMATCH:

Protocol packets are normally sent in sequential order, thus allowing the receiver to tell if a packet has already been received, or is missing. A block mismatch is generated when a packet that was not expected was received.

COMPLEMENT TIMEOUT:

A complement timeout is the same as a block timeout except that it occurs while the receiver is waiting for the complement of the block number to be sent.

COMPLEMENT MISMATCH:

The complement of the block number is where the block number is written out in 0's and 1's using binary notation, and then all of the 0's and 1's are reversed. As a result, the complement is just a simple check to make sure that the block number was received properly. If the complement does not match the block number, the packet must be faulty and has to be resent.

DATA TIMEOUT:

A data timeout error is generated when any portion of the data within the packet does not arrive within the proper time frame.

CHECKSUM TIMEOUT:

If the error checking information from a packet is not received within the preset time frame, a checksum timeout error will be generated.

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CHECKSUM MISMATCH:

This checksum mismatch is really analogous to an “error check failure” type of situation. This error means that the “error check” bytes showed that the data within the packet was corrupted. As a result, the receiver will prompt the sender to send the packet again. Note that while the error is called a checksum mismatch, the error correcting method being employed may be CRC or any other method as dictated by the protocol in use.

ACK TIMEOUT:

After a packet is sent, it needs to be acknowledged by the receiver. If the sender does not receive this confirmation within a preset time frame, an ACK timeout will be generated.

ACK MISMATCH:

If the sender is expecting an ACK (or a NAK) back from the receiver, but instead received some other character, an ACK mismatch is generated.

EOF FAILURE:

If the receiver gets an end of file from the sender, it will attempt to verify that the transfer is indeed over. If the receiver is unable to get verification from the sender, an EOF failure will result.

FINAL TIMEOUT:

In certain protocols (such as Xmodem ProDOS), and final packet is sent after all of the file data has been sent. If the receiver is waiting for this final packet, and it is not sent, then a final timeout will be generated.

Appendix E

Terminal Emulation

ProTERM has the ability to emulate several popular terminals that are on the market today. If you are using a system that sends terminal specific codes, consult the following list to find a compatible terminal. Certain terminals support more features than others.

Televideo
Heath H19/Zenith Z19
LSI ADM-3a
Soroc IQ-120
Hazeltime 1500
Datamedia 1500
IBM 3101 (character mode only)
DEC VT-52
DEC VT-100

To emulate a terminal, select "Dial" and go to the system parameters window. Use the arrow keys to edit "Terminal Emulation" so that the desired terminal type is displayed. Set "Display Status Bar" to "Off" so that all 24 lines of the display are available as they would be on a real terminal. The status bar is not automatically disabled because there are cases in which it is desirable to have it shown.

A complete discussion of the various types of terminals, the commands they accept, and the special features available is beyond the scope of this manual. If you are authorized to access a remote system which supports special types of terminals, ask the System Administrator for details on the supported terminals. Manuals may be supplied or are available to advise you of the special features that are available when a particular type of terminal (or an emulation of one of the special types) is connected to the remote system.

Most of the terminals listed above have keyboards that include keys that are not present on Apple // keyboards. The only terminal that ProTERM offers any keyboard emulation for is the DEC VT-100.

Appendix E: Terminal Emulation


DEC VT-100

The Digital Equipment Corporation's (DEC) VT-100 terminal has a keyboard with three distinct parts. The first is the main alphanumeric keyboard which is very standard. The second is the cursor arrow keys which are much like the arrow keys found on the Apple // keyboards. Finally, the VT-100 has a numeric keypad which includes four function keys.


VT-100 Main Keyboard Mapping for All Apples

The only keys of relevance present on the VT-100 which appear on none of the Apple keyboards are the BACKSPACE, BREAK, and LINEFEED keys. These keys are emulated in the following way:

BACKSPACE:

To send a "VT-100 BACKSPACE" press either [CTRL]-[H] or -[DELETE]. The later method is preferable since internally ProTERM does the conversion to [CTRL]-[H], though either method is acceptable.

BREAK:


The BREAK key on the VT-100 just sends a break signal. Under ProTERM use -[B], which is the "Send Break" command.

LINEFEED:

To send a LINEFEED, just type [CTRL]-[J]. This is the ASCII equivalent of a linefeed.

Appendix E: Terminal Emulation



















VT-100 Arrow Key Mapping for Apple //e & //c

The VT-100 has four arrow keys as does the Apple keyboard. To send any of the four arrow keys, just use -[Arrow] pressing the appropriate arrow key in conjunction with the closed apple key.

VT-100 Numeric Keypad Mapping for Apple //e & //c

Since the Apple //e & //c keyboards do not contain a keypad (external keypads and the keypad on the newest //e are not supported), sending VT-100 keypad keys becomes a little tricky. The following chart lists all of the VT-100 keypad keys along with the //e & //c keyboard commands to emulate them.

VT-100 Keypad Key Apple //e & //c Key

[0]	 -[0]
[1]	 -[1]
[2]	 -[2]
[3]	 -[3]
[4]	 -[4]
[5]	 -[5]
[6]	 -[6]
[7]	 -[7]
[8]	 -[8]
[9]	 -[9]
[.]	 -[.]
[-]	 -[-]
[,]	 -[,]
[ENTER]	 -[RETURN]
[PF1]	 -[!]
[PF2]	 -[@]
[PF3]	 -[#]
[PF4]	 -[\$]

Appendix E: Terminal Emulation

VT-100 Arrow Key Mapping for Apple IIGS

The Apple IIGS keyboard is set up in such a way that no special keys need to be pressed to send the arrows. Just use the four arrow keys as normal, and the appropriate VT-100 codes will be sent.

VT-100 Numeric Keypad Mapping for Apple IIGS

It is fortunate that the Apple IIGS not only contains a keypad, but that the keypad has a layout that is similar to that of the VT-100. Several of the Apple IIGS keys have been redefined to match their VT-100 counterparts, but no special key combinations are necessary.

<u>VT-100 Keypad Key</u>	<u>Apple IIGS Keypad Key</u>
--------------------------	------------------------------

[.]	[-]
[-]	[+]
[PF1]	[CLEAR]
[PF2]	[=]
[PF3]	[/]
[PF4]	[*]

The question may arise as to why the minus (-) key is redefined to plus (+) when there is already a minus key on the Apple IIGS Keypad. The change allows the Apple IIGS keypad to have all of the keys in the same physical location as they would appear on a VT-100 Keypad. This allows VT-100 users who are familiar with the keypad to continue using it in its present VT-100 layout.

Appendix E: Terminal Emulation

Split Screen Chat Modes

There are two modes that offer you a split screen; that is, where the incoming text from the system you are calling is displayed at the top of the screen, and the text you enter is displayed at the bottom of the screen. The intended purpose of this style of display is to allow more than one person to “chat” at a time. Just as we typically are mentally forming an answer while we are still listening to a speaker, when we “chat” over a modem, most people have a tendency to begin forming their response before the other “chatter” has finished typing. If you begin typing a response too soon without a split screen, your text will merge with the other text and both ends will soon see a screen full of gibberish.

In an attempt to satisfy as many users as possible, ProTERM allows you to choose from either a buffered or unbuffered method of text handling.

Both modes are selected by choosing them as a terminal emulation. This may be done by editing the parameters on the dialing screen or changing online parameters. After positioning the cursor to the terminal emulation choices, press the right arrow until one of the Chat modes appear.

Both modes will display a dotted line across the screen five lines from the bottom to divide the text areas.

Buffered Chat

In the buffered mode, all of your text is saved up (or buffered) until you press [RETURN]. At that time, all that you see in the lower window will be sent to the other system. Although you apparently have five lines, you actually only have 240 characters, which will use only the first three lines.

One distinct advantage to using the buffered mode is that you may use the Window Edit commands to edit your text. There is a difference that you must remember. Since the text you enter will be sent when you press [RETURN], it is considered as a line; even though it may actually use up to three full screen lines, it is still considered a single line. In this light, you should see that the [CTRL]-[R], restore original line, can't be used. Also, the other commands that affect the whole line (move to beginning/end of line, erase line, and truncate at cursor) must be thought of in terms of the “whole” line.

Another editing difference is the addition of two commands from the main editor; [CTRL]-[Q] to move to the next word to the left, and [CTRL]-[W] to move to the next word to the right.

Appendix E: Terminal Emulation

Unbuffered Chat

In the unbuffered mode, all characters are sent as you enter them. You have the entire five lines to work with, but you have no special editing capability.

This mode might be used when you are participating in a multi-user conference. Typically, a system that supports many users at the same time, will have some kind of means to keep everybody's text apart; usually buffering is provided by the system. If the system is providing buffering, it will generally wait until you enter [RETURN] before displaying your message to the other participants. However, when you are preparing your text, others may still be sending. Unless you use the split screen, your screen will soon become unreadable.

This mode would also be very good for two ProTERM users to chat with each other.

ProTERM Special Emulation

The ProTERM Special emulation was written to allow BBS sysops a simple way to handle screen control for calling users. As a caller, the only thing you can do is select the ProTERM Special emulation mode and hope that the system is sending special information. If nothing is being sent, then everything will appear as if no emulation were selected. If you don't know whether a system is sending ProTERM Special information, it will do no harm to select it anyway.

The remainder of this section contains the information necessary for a sysop to use to create a ProTERM Special mode.

All controlling codes consist of single control characters. While this may not be as reliable as using a lead-in character (such as escape) followed by a code, it allows compatibility to be maintained with the Datamedia 1500 emulation which is the only thing currently approaching a standard for the Apple // world. In addition, because all the codes are control characters, they can be imbedding into text, and displaying them will generally not cause problems with emulations other than ProTERM Special. For codes that require additional data parameters, just send the ASCII code corresponding to the parameter. For example, if you need to send the parameter number 09, send a ctrl-I which has the ASCII code value of 09.

Appendix E: Terminal Emulation

Control Codes

Control-N Show text in "normal" mode (highlight off, mousetext off)
Control-O Show text in "inverse" mode (highlight on, mousetext off)
Control-P Show text in "mousetext" mode (highlight off, mousetext on)

Control-H Move cursor left one character
Control-U Move cursor right one character
Control-K Move cursor up one line
Control-J Move cursor down one line

Control-I Move cursor to next tab stop (fixed stops every 8 chars)

Control-A Move cursor to beginning of line
Control-B Move cursor to end of line

Control-X Home cursor (move to upper left corner)

Control-^ [Control-^ X+32 Y+32] Position cursor to the X, Y coordinates.

To position the cursor to any position on the screen (X can be 0 to 79, while Y can be 0 to 23), just send the position code followed by the X and Y location, offset by 32. When the X, Y codes are sent, simply add 32 to the values to get the proper offset. For example, to position to column 27, line 5, you would send "Control-^ ; %". The ";" is the ASCII code for 59 (27+32), and "%" is the ASCII code for 37 (5+32).

Control-D Delete current character (under cursor)
Control-F Insert space at cursor

Control-Z Delete current line
Control-V Insert blank line

Control-Y Clear to end of line
Control-W Clear to end of screen
Control-L Clear the screen (and home cursor)

Control-E Inquire whether caller is using ProTERM Special Emulation

When you send out a control-E to the caller, and the caller is using ProTERM Special, the caller's ProTERM will send back a "Control-J" (ASCII code 29). This allows a BBS to transparently find out if the caller is using ProTERM Special.

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Control-G Sound the bell

Control-R [Control-R X Y] Repeat character X, Y times.

This allows a three character code to be used to display multiple characters. For example, to display a window frame, it is necessary to show the top and bottom borders which are long lines of the same character (dashes, underlines, etc). For example, to draw a 64 character line consisting of equal signs, send "Control-R=@" where "@" is the ASCII code for 64.

Control-T [Control-T T1 Control-A D] Sound tone T1, for duration D
[Control-T T1 T2 D] Sound dual tone T1, T2 for duration D

The tone command has two forms. The first invokes the single tone generator which produces relatively pure tones. The second invokes the dual tone generator which produces some rather interesting sounds. The three parameters, T1, T2, D can all take values from 1 through 127. There is currently no known translation between pitch/duration values and actual frequencies/times.

Appendix F

Keyfix - Change the Editor's Keys

KEYFIX - Editor Key Definition for ProTerm

As is often the case, not everybody sees everything quite the same. What may be perfectly convenient for one may be awkward for another. Keyfix affords the opportunity to select an alternate set of text editor command keys.

To accomplish this, execute the file KEYFIX from ProDOS. You will need to make sure that KEYFIX and PT.ROUTINE are in the same directory. KEYFIX will indicate the Current Keyset (after reading it from the PT.ROUTINE file) and offer a selection of either A) Alternate Definition or B) Standard Definition. Selection change will be shown on the Current Keyset line. Press either [A] or [B] to select; then [ESC] followed by [RETURN] to exit.

Note: the Editor's Help Screen will also change to reflect the new command keys.

Keysets are as follows:

Appendix F: Keyfix

The Standard Command Set

Movement Commands:

[LT]	Move back one character
[RT]	Move forward one character
[UP]	Move up one line
[DN]	Move down one line
⤴- [LT]	Move to previous word
⤴- [RT]	Move to next word
⤴- [UP]	Move up a full screen
⤴- [DN]	Move down a full screen
[CTRL]-[Q]	Move to previous word
[CTRL]-[W]	Move to next word
[CTRL]-[A]	Move to start of line
[CTRL]-[S]	Move to end of line
[CTRL]-[R]	Move to previous page
[CTRL]-[T]	Move to next page
[CTRL]-[B]	Move to beginning of file
[CTRL]-[E]	Move to end of file
⤴-[1] to ⤴-[9]	Position into file

Deleting / Inserting Text:

[DELETE]	Delete previous character
[CTRL]-[D]	Delete cursor character
[CTRL]-[F]	Insert space at cursor
[TAB]	Move to next tabstop
[CTRL]-[V]	Delete current word
[CTRL]-[Y]	Delete to end of line
⤴-[Y]	Delete to end of line
[CTRL]-[Z]	Delete the current line
[CTRL]-[N]	Insert a new line
⤴-[D]	Delete selected text

Appendix F: Keyfix

Formatting Commands:

[CTRL]-[O]	Concatenate two lines
[CTRL]-[G]	Glue two lines together
[CTRL]-[L]	Add return to end of line
[CTRL]-[^]	Delete leading and trailing spaces
⌘-[O]	Reformat selection
⌘-[K]	Change case of selection

Miscellaneous Commands:

[CTRL]-[C]	Start marking a selection
[CTRL]-[P]	Insert a control character
⌘-[F]	Find occurrence(s) of...
[CTRL]-[X]	Find next occurrence...
⌘-[R]	Replace occurrence(s) of...
⌘-[X]	Cut selection to clipboard
⌘-[C]	Copy selection to clipboard
⌘-[V]	Paste clipboard at cursor
[ESC]	Escape from editor
⌘-[S]	Save file to disk
⌘-[N]	Clear current file from memory
⌘-[P]	Print editor / selection
⌘-[A]	Send editor / selection
⌘-[L]	Load file at cursor
⌘-[W]	Write selection to disk
⌘-[B]	Show size of editor selection
⌘-[E]	Toggle insert / overstrike mode
⌘-[TAB]	Toggle TAB mode
⌘-[Z]	Toggle CR display mode

Appendix F: Keyfix

The Alternate Command Set

Movement Commands:

[LT]	Move back one character
[RT]	Move forward one character
[UP]	Move up one line
[DN]	Move down one line
⌘-[LT]	Move to previous word
⌘-[RT]	Move to next word
⌘-[UP]	Move up a full screen
⌘-[DN]	Move down a full screen
[CTRL]-[Q]	Move to previous word
[CTRL]-[W]	Move to next word
[CTRL]-[A]	Move to start of line
[CTRL]-[S]	Move to end of line
[CTRL]-[P]	Move to previous page
[CTRL]-[N]	Move to next page
[CTRL]-[B]	Move to beginning of file
[CTRL]-[E]	Move to end of file
⌘-[1] to ⌘-[9]	Position into file

Deleting / Inserting Text:

[DELETE]	Delete previous character
[CTRL]-[D]	Delete cursor character
[TAB]	Move to next tabstop
[CTRL]-[Z]	Delete current word
[CTRL]-[Y]	Delete to end of line
⌘-[Y]	Delete to end of line
[CTRL]-[X]	Delete the current line
⌘-[D]	Delete selected text

Appendix F: Keyfix

Formatting Commands:

[CTRL]-[O]	Concatenate two lines
[CTRL]-[G]	Glue two lines together
⌘-[O]	Reformat selection
⌘-[K]	Change case of selection

Miscellaneous Commands:

[CTRL]-[C]	Start marking a selection
[CTRL]-[V]	Insert a control character
⌘-[F]	Find occurrence(s) of...
[CTRL]-[F]	Find next occurrence...
⌘-[R]	Replace occurrence(s) of...
⌘-[X]	Cut selection to clipboard
⌘-[C]	Copy selection to clipboard
⌘-[V]	Paste clipboard at cursor
[ESC]	Escape from editor
⌘-[S]	Save file to disk
⌘-[N]	Clear current file from memory
⌘-[P]	Print editor / selection
⌘-[A]	Send editor / selection
⌘-[L]	Load file at cursor
⌘-[W]	Write selection to disk
⌘-[B]	Show size of editor selection
⌘-[E]	Toggle insert / overstrike mode
⌘-[TAB]	Toggle TAB mode
⌘-[Z]	Toggle CR display mode

Appendix G

SQUIRT - A ProDOS Program Selector

Your ProTERM disk includes a ProDOS program selector that could increase your productivity and make RAM disk or hard disk use more practical. A program selector is a software device that helps you move between unprotected ProDOS programs that support the ProDOS quit code protocol. After looking at various program selectors, Checkmate Technology decided to offer SQUIRT as part of your ProTERM package. The author of SQUIRT is Steve Stephenson. In order to understand the value of this feature, you need to know a little about ProDOS.

As you probably know, ProDOS is the “traffic manager” for the programs and data that move in and out of your Apple. Its main job is to direct files from a storage device to the computer and back again. Programs that are written in ProDOS should follow certain conventions in their operation. One of these conventions is that programs should quit through a special part of ProDOS called the “quit routine.” This is the mysterious place you normally find yourself when leaving AppleWorks. It is the land of 40 column screens and obscure questions about prefixes and pathnames. The typical reaction is to turn the machine off and reboot your next application.

Using SQUIRT is simplicity itself. If you made your ProTERM Working Copy from the distribution disk, SQUIRT will be automatically installed when you boot the disk. Let’s take it for a test drive. When you e“X”it from ProTERM, your disk drives will spin and SQUIRT will appear. The first SQUIRT screen displays the name of each disk volume that you can access; each volume is listed with a letter to the left of the name. The next file you want to run should be on one of these disk volumes. Since you left from the ProTERM disk, you will see PROTERM displayed as one possible choice; pick the letter corresponding PROTERM. The next screen that you see shows all of the system files in PROTERM. This is called the PROTERM root directory. If there were any subdirectory files in the root directory, they would also be shown on the SQUIRT screen. Subdirectory files hold lists of files like the first (or root) directory. System files are frequently “launcher” or kick-off files that begin the running of a program. Your ProTERM disk contains the file “PROTERM.SYSTEM.” Other examples of system files (not on your disk) are “APLWORKS.SYSTEM”, “WP.SYSTEM” and “UTIL.SYSTEM.”

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Selections are made by pressing the appropriate letter; single keystrokes are all that is required. If you choose a series of subdirectories, you will see the current path displayed near the upper-left portion of the screen. Should you ever find that you have chosen the wrong volume or subdirectory, you can "back out" to the last menu by pressing [ESC]. At the volume (outermost) level, you can remove a floppy disk and replace it with a different one. Pressing [ESC] again causes SQUIRT to access that disk, and it is presented as an option. If you access a subdirectory that contains (no files), it means that there are no subdirectory or system files in that directory.

SQUIRT's actions are limited to following a chain of subdirectories or running a system file. This means that the only files that are displayed on the SQUIRT screen are either subdirectory or system files. Choosing a subdirectory file will display all of the additional subdirectory files and system files that are in that first subdirectory. Choosing a system file will cause SQUIRT to run that file. SQUIRT is particularly useful when working with large storage devices like RAM disks, 31/2" disks, and hard disk drives.

Using SQUIRT.SYSTEM

When SQUIRT.SYSTEM is executed, it inserts SQUIRT into the area of ProDOS normally occupied by the "quit routine." Immediately after SQUIRT.SYSTEM has installed SQUIRT, it mimics ProDOS by examining the boot disk's root directory for the name of the next system file with the suffix ".SYSTEM" and running that file. Thus, there is absolutely no interference with the normal ProDOS boot process; SQUIRT stays completely transparent to the user until the ProDOS "quit routine" is called. Once SQUIRT has been installed in ProDOS, you don't have to reinstall it unless the system is powered-down or unless ProDOS is reinstalled.

Once SQUIRT is installed, the ProDOS in memory is modified. However, it is quite difficult to extract ProDOS from memory with SQUIRT intact. The licensor of SQUIRT, Synesis Systems, has published another version of SQUIRT that allows the user to permanently imbed SQUIRT into ProDOS on a diskette. When that ProDOS file is moved from disk to disk, SQUIRT goes along with it. To order the enhanced SQUIRT disk and documentation send \$8.50 (\$7.50 + \$1.00 s/h) to:

Synesis Systems
Dept. C
P.O. Box 1308
Gilbert, AZ 85234

Appendix G: SQUIRT

ProDOS Subdirectory Files And SQUIRT

The subdirectory file is the key to ProDOS's tree-like filing structure. For more detailed information on ProDOS pathnames and subdirectory files, ProTERM users may purchase the MultiRam Software Manual. This Manual, while intended to be used with Checkmate's MultiRam software, can provide valuable information about ProDOS pathnames, RAM disks and expanded AppleWorks.

You may think of a subdirectory file as a table of contents in a book. However, subdirectories can contain entries that are actually other subdirectories. ProDOS supports many levels of subdirectories, but practically speaking, one rarely has a use for more than two or three levels of directories. If you go overboard, you can get lost by forgetting the proper paths to the files you need.

SQUIRT only displays system files or subdirectory files. This is because, 1) system files are the only files that can be executed directly from ProDOS, and 2) subdirectories can lead you to "deeper" subdirectory levels with system files.

ProDOS System Files And SQUIRT

System files are one of ProDOS's standard file types. Like binary files, system files are in machine language; however, system files follow a particular format and always load into memory at a certain location.

When a ProDOS disk boots, the track 0 code loads and runs a system file called "ProDOS." As ProDOS gets organized it "looks" in the disk directory for the first file that satisfies two conditions: it is a "SYS" type file and it has the suffix ".SYSTEM." This file is then loaded and run. This kind of file can be regarded as a "launcher" or kick-off file. There are other system files that are not launcher files. These CANNOT be run and usually do not have the ".SYSTEM" suffix; a good example is the "SEG.PR" file in AppleWorks.

To make the most of SQUIRT you must learn the names of the system files that start off each application program you want to run. A little detective work can usually reveal the name you want. The trick is to CATALOG the disk containing the application program. Usually, the first file with the suffix ".SYSTEM" is the actual launcher file. Don't be surprised to find more than one system file in the directory, as system files are often used for purposes other than "launching" an application. For example, on an AppleWorks disk you will always find the file named "SEG.PR". If you should ever select this file from SQUIRT, you will cause the computer to crash into the

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monitor. You may try it if you wish; to recover, put your ProTERM disk into the disk drive and press [CTRL] + [Open-Apple] + [RESET] to reboot.

Using SQUIRT With BASIC Programs

While SQUIRT cannot execute BASIC programs directly, you can still move from SQUIRT to a BASIC program and back again. As you probably know, the BASIC Interpreter is itself a system file. Whenever it is found in a directory, SQUIRT displays it as a selection on the menu. Remember, SQUIRT only looks for subdirectory and system files; since it doesn't care what you name a file, an interesting solution presents itself. Begin by placing both BASIC.SYSTEM and your BASIC program (let's call it CALC.INTEREST) on the disk in the same directory. Next, rename CALC.INTEREST as STARTUP; rename BASIC.SYSTEM as CALC.INTEREST. Now you have the BASIC Interpreter on your disk under a fictitious (but descriptive) name and your BASIC program alongside under the name STARTUP. When SQUIRT looks into the disk directory, it will show a file named CALC.INTEREST and ignore STARTUP. If you select CALC.INTEREST, the BASIC Interpreter will load and run, then search for a file called STARTUP to execute. Conveniently, this STARTUP is the BASIC program you wanted to run all along!

Once your BASIC program has finished its work, you probably want to exit back into SQUIRT. This is done by using the BASIC command, "BYE;" when BYE is encountered, the ProDOS "quit routine" is executed. The BYE command can be used in immediate or deferred modes; this means from the BASIC prompt or from within a program. From the BASIC prompt, type 'BYE' then [RETURN]; from within a program use a statement like this:

```
1000 PRINT CHR$(4) "BYE"
```

NOTE: BASIC version 1.1 or 1.2 is required to support the "BYE" command.

Getting Rid of SQUIRT

As useful as SQUIRT is, it may become a nuisance by interfering with the use of another program selector you prefer. Other selectors are ProSel by Glen Bredon, Bird's Better Bye by Alan Bird and MouseDesk (not available currently).

To eliminate SQUIRT from your disk, simply delete the file called SQUIRT.SYSTEM. SQUIRT will go away and never bother you again.

Appendix H

ASCII Character Charts

<u>DEC</u>	<u>HEX</u>	<u>CHAR</u>	<u>Key</u>	<u>DEC</u>	<u>HEX</u>	<u>CHAR</u>	<u>Key</u>
00	00	NULL	ctrl-@	30	1E	RS	ctrl-^
01	01	SOH	ctrl-A	31	1F	US	ctrl-_
02	02	STX	ctrl-B	32	20		SPACE
03	03	ETX	ctrl-C	33	21	!	!
04	04	ET	ctrl-D	34	22	"	"
05	05	ENQ	ctrl-E	35	23	#	#
06	06	ACK	ctrl-F	36	24	\$	\$
07	07	BEL	ctrl-G	37	25	%	%
08	08	BS	ctrl-H (left arrow)	38	26	&	&
09	09	HT	ctrl-I (tab)	39	27	'	'
10	0A	LF	ctrl-J (down arrow)	40	28	((
11	0B	VT	ctrl-K (up arrow)	41	29))
12	0C	FF	ctrl-L	42	2A	*	*
13	0D	CR	ctrl-M (return)	43	2B	+	+
14	0E	SO	ctrl-N	44	2C	,	,
15	0F	SI	ctrl-O	45	2D	-	-
16	10	DLE	ctrl-P	46	2E	.	.
17	11	DC1	ctrl-Q	47	2F	/	/
18	12	DC2	ctrl-R	48	30	0	0
19	13	DC3	ctrl-S	49	31	1	1
20	14	DC4	ctrl-T	50	32	2	2
21	15	NAK	ctrl-U (right arrow)	51	33	3	3
22	16	SYN	ctrl-V	52	34	4	4
23	17	ETB	ctrl-W	53	35	5	5
24	18	CAN	ctrl-X	54	36	6	6
25	19	EM	ctrl-Y	55	37	7	7
26	1A	SUB	ctrl-Z (clear)	56	38	8	8
27	1B	ESC	ctrl-[(escape)	57	39	9	9
28	1C	FS	ctrl-\	58	3A	:	:
29	1D	GS	ctrl-]	59	3B	;	;

Appendix H: ASCII Charts

<u>DEC</u>	<u>HEX</u>	<u>CHAR</u>	<u>Key</u>
60	3C	<	<
61	3D	=	=
62	3E	>	>
63	3F	?	?
64	40	@	@
65	41	A	A
66	42	B	B
67	43	C	C
68	44	D	D
69	45	E	E
70	46	F	F
71	47	G	G
72	48	H	H
73	49	I	I
74	4A	J	J
75	4B	K	K
76	4C	L	L
77	4D	M	M
78	4E	N	N
79	4F	O	O
80	50	P	P
81	51	Q	Q
82	52	R	R
83	53	S	S
84	54	T	T
85	55	U	U
86	56	V	V
87	57	W	W
88	58	X	X
89	59	Y	Y
90	5A	Z	Z
91	5B	[[
92	5C	\	\
93	5D]]

<u>DEC</u>	<u>HEX</u>	<u>CHAR</u>	<u>Key</u>
94	5E	^	^
95	5F	_	_
96	60	`	`
97	61	a	a
98	62	b	b
99	63	c	c
100	64	d	d
101	65	e	e
102	66	f	f
103	67	g	g
104	68	h	h
105	69	i	i
106	6A	j	j
107	6B	k	k
108	6C	l	l
109	6D	m	m
110	6E	n	n
111	6F	o	o
112	70	p	p
113	71	q	q
114	72	r	r
115	73	s	s
116	74	t	t
117	75	u	u
118	76	v	v
119	77	w	w
120	78	x	x
121	79	y	y
122	7A	z	z
123	7B	{	{
124	7C		
125	7D	}	}
126	7E	~	~
127	7F	DEL	DELETE

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